# FOOD MANUFACTURE

*Incorporating Food Industries Weekly*

NARD HILL LIMITED, 17 STRATFORD PLACE, LONDON, W.1 OCTOBER 1, 1950

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# FOOD MANUFACTURE

**Vol. XXV. No. 10 · Published Monthly · October 1, 1950**

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FOOD MANUFACTURE

Vol. XXV, No. 10 October 1, 1950

## *U.S. Food—British Made*

THE food and canning industries in Scotland have been offered a valuable opportunity to link up with American concerns, through the enterprise of the Scottish Council (Development and Industry). Although such co-operation has been common among larger firms, smaller concerns have lacked the contacts and scope to benefit by association with their counterparts in the U.S.A. and the present aim is to bring such firms into the scheme. The limitation of the sterling market in terms of dollar buying has given an impetus to overseas manufacturing by American firms, and it is now proposed that the smaller U.S. firms should link with similar firms in Scotland to manufacture American specialities, under licence, for the sterling area.

This scheme was propounded by the Scottish Council during its visit to the U.S.A., and so excellent was the response from some 65,000 American firms, that the E.C.A. authorities have given approval—with the proviso that the scheme must also be offered to other Marshall Aid countries.

Firms in Britain, both large and small, who are interested in manufacturing U.S. goods under licence, are now being asked to contact the Council who will put them in touch with opposite numbers in the U.S.A. They are urged to follow up this move as quickly as possible in view of the fact that Continental countries are anxious to take advantage of the same facilities, and most manufacturers in the U.S.A. will grant licences exclusively to one firm, rather than spread production over a number of them.

## *More and Better Bacon*

That improvement of quality bacon produced in Britain is essential if the industry is to meet the more competitive conditions now developing, was the basic theme of the recent Aberdeen pig rearing conference which was attended by some 500 men in the industry, and included an inspection of new housing methods and breeding systems.

One of the main points stressed at the meeting was that the Danes, Dutch, and Canadians are producing lighter weight, better quality pigs aimed at the British market. Pig population has expanded in most of these competing countries, owing to the better balanced feedingstuff position, whereas in Britain the number amounts to only 60 per cent. of the pre-war level. The war years have brought about the loss of many of the advantages derived from the pre-war marketing schemes, and urgent and determined work was now called for if a satisfactory basis were to be regained. Most important of all, the conference demonstrated the complete rejection of fat bacon by British consumers.

Dr. A. Calder, Director of Pig Supplies, Ministry of Food, urged a reversion to quality production as well as an expansion in pig population as the only real way of competing with foreign producers selling to Britain. In view of the conclusions of this conference it is interesting to note that the Scottish Department of Agriculture estimated the pig population in June, 1950, at 250,000, as against the figure of 232,445 recorded in June, 1949.

## *In the Bag*

The use of sulphur dioxide as a preservative for wines and fruit juices may be revolutionised by a recent American device, which consists of putting a metabisulphite salt inside a small polyethylene bag and suspending the bag in the wine or juice. A small but steady supply of sulphur dioxide is released to the liquid, but it is a one-way process, for the wine or juice cannot pass through the plastic membrane. This allows continuous preservation without risk of excess absorption.

While only trace amounts of free sulphur dioxide are needed for preserving, gradual losses by evaporation and by combination with organic matter have usually meant that much more than the minimum amount has to be added, and also that frequent doses are needed during long storage. The preservative that becomes combined with organic substances tends to produce off-flavours; it is, for example, well known that even intense boiling will not remove sulphur dioxide residues from sulphited fruit pulps—there is a small and exceedingly stable residue.

For liquids, if not perhaps for pulps, the enclosure of the sulphur-dioxide-releasing salt in a polyethylene bag may greatly minimise this trouble and make it easier to preserve with sulphite without exceeding the legally permissible limits for sulphur dioxide.

## *Vanilla Research*

Since 140 million people in the United States consume more vanilla than the remaining 2,000 million inhabitants of the world, it is not surprising that its production has been studied mainly by American scientists. Vanilla had long been obtained from a wild orchid native to Mexico. Then came the remarkable synthesis of vanillin—the flavouring of vanilla—from the lignin in waste liquors of wood pulp manufacture, remarkable because lignin is one of the world's largest wastes and so far vanillin is one of the very few high-grade products to be made from it. However, American scientists seem determined to make trebly certain that the major flavouring of their countrymen's ice creams shall never be lacking, and long-term efforts have now resulted in the production of a hybrid vanilla plant at Cornell University.

It is hoped that this new hybrid plant will become the basis of a vanilla industry in Puerto Rico. Hitherto efforts to establish the wild orchid in Puerto Rico have been defeated by a soil or root disease, but the new man-made species is believed to be immune to this trouble.

In the history of plant breeding the cultivated vanilla hybrid must be regarded as a notable achievement, but it is difficult to see how it can ever become a stabilising factor in Puerto Rico's economy. A mere 0·5 per cent. of waste sulphite liquors from America's pulp mills will supply all the vanilla that her people now consume. An easily expandable synthetic production method threatens the future of Puerto Rico's cultivated vanilla plantations even before they are sown.

## *Groundnuts for Indians*

Dr. Vijayaraghavan of the Nutrition Research Laboratory, India, who is engaged in protein investigations in the United States, recently expressed the view that his country's health and nutrition problems would be greatly relieved if her population could be educated to eat groundnuts. This crop is already one of India's biggest, but each year most of the harvest is used for feeding cattle.

The primary cause of much of India's plagues and disease is protein starvation. The religious worship of cattle, although gradually diminishing among modern Indians, prevents meat from playing a significant part as a source of protein. On the other hand, the traditional vegetarianism of so many millions does not provide anything approaching protein adequacy from vegetable sources. The result, as may be expected, is widespread malnutrition and deficiency diseases. Seasonal infections readily become plague epidemics because of the poor resistance of a crowded population.

As it seems impossible to overcome religious prejudices and popularise meat eating, Dr. Vijayaraghavan believes that progress can be made only by introducing into the Indian diet a vegetable with a high protein content. The groundnut, which measures up to this requirement, could be expanded in production and diverted from animal feeding.

Once again it seems that this innocent and useful vegetable will be tossed into the political arena. Is it in the end to possess an impact upon history like that of the potato? Before the introduction of the potato into eastern Europe the main basis of diet was cereals; in many parts of the East rice holds sway and has done so for centuries. Europeans cannot indict the Indians for feeding animals instead of themselves upon their best source of vegetable protein; there was in most of Europe an incredibly prejudiced resistance to the introduction of the potato, and yet when this crop became established its failures from blight caused severe famine and drastic political crises.

## *Where the Extra Milk is Going*

Practically the whole of the extra milk produced this year is going into manufacture. In the first five months of 1950, 186,100,000 gallons of milk were used for manufacturing purposes compared with 118,800,000 in the corresponding period last year, an increase of 67,300,000 gallons, or 56 per cent. Moreover, from January to May this year an average of 37,200,000 gallons a month has been used for manufacture, whereas in 1939 the monthly average for the whole of the year was 36,300,000 gallons. Will the creameries use as much milk for processing this year as before the war?

In May this year some 62,500,000 gallons of milk were used for manufacturing purposes—the largest quantity in any month for some years. Compared with the manufacturing programme for May, 1949, the largest increases were in butter and cheese (both of which are heavily subsidised), which took up more than half of this gallonage.

It has been suggested that the milk subsidy, now running at the record level of £104,500,000 a year, could be materially reduced by manufacturing more condensed milk and milk powder, and less cheese and butter, but so far Ministry of Food policy has been to concentrate on the production of rationed products so as to ensure that the highest possible rations can be honoured. The Ministry has never aimed at utilising milk so as to obtain the highest possible realisation price and so reduce the milk subsidy.

It has been stated that if the Milk Marketing Board were to recover its pre-war marketing powers (which it desires to do) the utilisation of manufacturing milk would be revolutionised, the aim being to produce the best possible economic result and not to safeguard supplies of highly subsidised products merely because they are on the ration.

## *Processed Cheese Deconcentration*

The six months' notice of deconcentration given by the Ministry of Food to the cheese processing industry expired on September 30, and under the terms of the agreement between the Ministry and the industry, all cheese processing factories that have been closed are now free to resume operations.

A year ago fifteen of these factories were closed under the concentration scheme and, with the coming of deconcentration, the Ministry's liability to make provision for their maintenance ceases. This restoration of "liberty" does not mean that the whole of the fifteen factories will be able immediately to resume operations. Much will depend on the availability of cheese for processing—that is, cheese which is unsuitable or not required for the ration.

## *Grain Protection Advance?*

The protection of stored grain has never been an easy operation—on the whole, periodic fumigation of stores and silos has been the only practical defence. Long-term protection could be achieved by mixing contact insecticides with the grain, but this method, though applicable to seeds held in store or to wrapped foodstuffs like dried fruits, cannot be used for grain. To quote from the *U.S. Yearbook of Agriculture, 1947*: "Because all the residual insect toxicants are poisonous to warm-blooded animals, they must not be used to spray grain or milled cereal products intended for human food or animal feed." Thus, although the pests of stored foods cause huge losses—amounting to as much as 500 million dollars in value for grain in the United States—the same weapons used to defeat pests in the field cannot be safely employed. Fumigation with short-term insecticides and repellents has had to be developed instead.

Recent reports from America suggest that this deadlock in the strategic war against pests may soon be broken. A fairly new insecticide, piperonyl butoxide, appears to be suitable for use as a contact protectant for stored grain. Dusts based upon this chemical have given complete protection against weevils and beetles for nine and a half-months; on the other hand, piperonyl butoxide is non-toxic to warm-blooded animals. Further tests on both the efficiency and safety of this substance are now being carried out by the U.S. Department of Agriculture. If, as is expected, this development is given an official "all clear," it will revolutionise grain protection methods not only in America but all over the world.

Paradoxically, piperonyl butoxide has a short and slender history as an insecticide in its own right. It first came into prominence during the war years as a synergist or extender for pyrethrum. Certain substances, when mixed with pyrethrum, were known to increase its toxicity to insects even though they did not possess powerful insect toxicity themselves. Of these extenders, piperonyl butoxide was one of the few which could be produced synthetically and it was therefore increasingly used during the war-time pyrethrum shortage. It was then known to be non-toxic to humans and animals; but the indication that it is by itself powerfully toxic to weevils and beetles will come as something of a surprise to many workers in pest control.

## *Survey of the Herring Industry*

The spirit of optimism and pessimism alike pervades the fifteenth annual report of the Herring Industry Board. On the debit side are the declines in home market demands balanced by valuable progress in research on the credit side.

The Herring Industry Advisory Council have advised the board that the home market cannot be supplied with herring and kippers of a satisfactory standard of quality unless the board are allowed to introduce regulations aimed at excluding from the markets herring which are unsuitable for freshing or kippering.

Reliable transit arrangements are also essential if the fish are to reach the consumer in a fresh condition.

The herring industry has, in the last three years, produced progressively increasing quantities of edible oil and meal, which, in the year under review, were sufficient to provide some 20 million individual rations of margarine and the necessary protein element for 45,000 tons of animal feedingstuffs.

Further extensive and intensive experiments were carried out with the ten Swedish gutting machines introduced by the board into the U.K. The researches carried out so far have not been confined to the field of gutting only. Considerable attention has been devoted to the problems of layout, of mechanised handling of fresh herring to the machine operatives and of gutted herring to the selectors and packers, and of gut disposal and barrel handling. It is hoped that, by the end of 1950, mechanised curing will be established as technically and economically feasible.

The year under review also saw the completion of the first full year's operations at the board's Herring Canning Research Station at Port Glasgow.

Numerous technical experiments have been made in relation to the process of canning herring, and preliminary work has been carried out in an attempt to produce a stable marinated herring pack.

A new product being developed for the export market is dry-cured herring, which it may eventually be possible to market at lower prices than either second-quality red herring or cured herring. The greatest scope for the development of markets for a product of this kind seems to lie in the African continent.

## *The Disappearing Whale*

The time has come when something must be done to stem the decline in whale stocks. A limit has been imposed on the number of whales that may be caught each season but, at the same time, the number and efficiency of the expeditions have increased steadily. One solution to the problem is to speed up the manufacture of by-products and not to hunt the whale almost exclusively for its oil, as has hitherto been the case in the Antarctic.

In the 1948–49 season, the value of by-products from Norwegian expeditions was £225,000, but Norway is still lagging behind Britain's efforts in this respect.

Nevertheless, her achievements must not be belittled. The Thorshavet expedition last season operated an experimental plant for the extraction of animal fodder and fertilisers and promising results were achieved, the expedition producing 700 tons of liquid fodder concentrate. The *Kosmos IV* expedition produced 28 tons of vitamin oil, 18 tons of meat extract, and 65 tons of liquid fodder concentrate. The *Kosmos V* expedition produced 160,000 tins of whale meat cakes and 40,000 tins of whale liver, all in the course of only 24 working days. It is also reported that the whaling company Thor Dahl will shortly have ready a new up-to-date laboratory near Sandefjord, the great Norwegian whaling centre, which presumably will study questions relating to increased exploitation of by-products from the whale.

## *The Grapes of Wrath*

Not so many months ago a certain brand of sherry, with a name renowned for centuries and even honoured in Pepys's diary, fluttered the dovecots of Whitehall. What was in a name indeed? How could sellers of wines dare to confuse the British public by describing a sherry as a local milk? The crisis passed when a new Minister of Food rapidly dispelled the verbal quibbling of officialdom. Would that all crises were as gentle!

The British public derived some amusement, the sherry firm derived an exceedingly useful amount of publicity both at home and abroad, and Mr. Maurice Webb earned himself a mark for good conduct in bringing the affair to a decent end at the right moment. We note that the juices of the grape are still on the Whitehall lists for skirmishes and sanctions. It is not enough that the Treasury should have taxed the wines of the world for generations and forced the everyday delights of Europe into the Saturday-night luxury class for the British. Sherry survived the flank attack of bureaucracy—and now it is the turn of port.

After November 19, it becomes illegal to use the term "invalid port"; on that date the Labelling of Food Order (1950) becomes law. Thereafter nobody may sell any liquid described as possessing medicinal properties unless it has enough of some substance other than alcohol "to confer such properties," and unless the description is augmented by a statement of the percentages of such substances. This is the obituary notice for invalid port. No longer may timid and abstaining souls ease their convalescence with a nightly glass of licensed tonic and quiet consciences. The law has taken away that one alibi of the abstainer, who finds a practical use for alcohol at such times.

Nevertheless, this is not, like the sherry affair, a piece of social comedy. By what right have our legislators been able to declare it an offence to claim medicinal virtues for port? Who has yet been able to analyse in a laboratory the delicate qualities of wines? Science is not even within sight of this conquest.

Invalid port has been bought by worried husbands for ailing wives for centuries, often enough with the doctor's blessing. Surely in this age of drastic and fearful realism we might have been left with one illusion—if, indeed, it was merely an illusion—from the kindlier past?

We are reaching the stage when all that is not precisely definable by science and State must be classified as illegal, when anything that officials cannot understand must be banned.

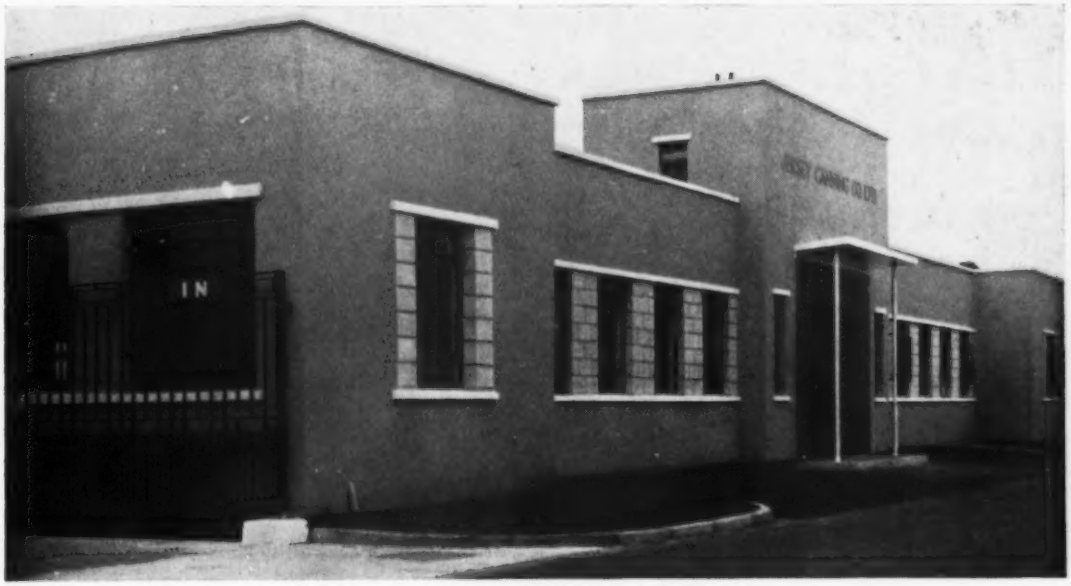
## *Information and Advice*

The title of a little book which appeared on our desk looked as if it might interest us. On opening *Information Services* (R. L. Collison, F.L.A., James Clark and Co., 6s. net) we found our first impressions to be correct.

Our readers know something about our own feature "Information and Advice," through which enquiries are dealt with from the four corners of the earth, mainly on food matters, but in the case of two over-curious correspondents, on how to make firelighters and the historical origin of the game of marbles. Why these enquiries were directed to a food journal is one of those inexplicable things, but the answers were supplied and we ourselves were able to learn a lot about marbles!

To those who are not aware of the organisation involved in the running of such a service, the little book mentioned above will provide the necessary details and give some insight into the multifarious records that must be kept up to date.

The numerous illustrations, including one of the Leonard Hill library, enable the reader to gain a visual idea of the possibilities of the information service of today and provide a useful check list for those organisations which have already developed their services.




# Jersey's New Food Canning Factory

BASIL C. de GUÉRIN

**The official opening of the Jersey Canning Company's new premises at Greve d'Azette, St. Clements, by H.E. the Lieut.-Governor of Jersey, Lieut.-Gen. Sir Edward Grasett, took place on August 21. A welcome was extended to the Lieut.-Governor by Mr. S. W. Smedley of the National Canning Co., who gave a brief résumé of the growth of the business which had necessitated the erection of the new factory.**

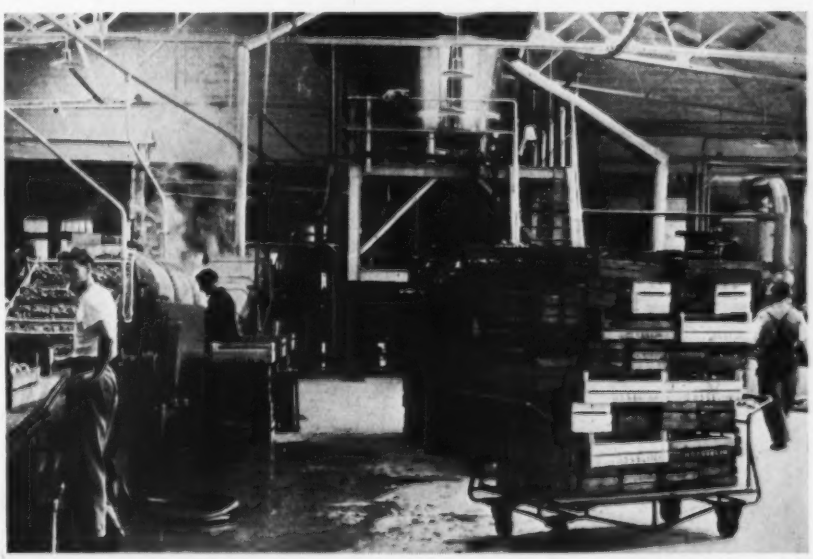
MODERN in layout, the premises, covering an area of over three acres, are built of reinforced concrete with wall dressings suitable to their requirements, giving a general impression of light and space. At each end of the premises are roadways by which the laden farm carts and other vehicles enter and depart, while the building itself houses the offices of the manager, secretary, clerical staff, laboratory, and first-aid room.

Immediately to the rear of this initial block of buildings lies a large open space which is used as an unloading park and for the stacking of tomato boxes during the height of the season.

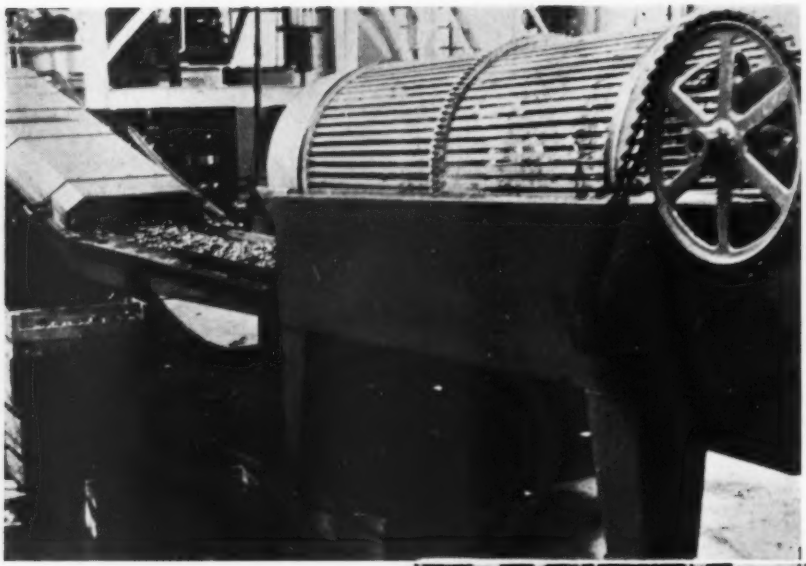
### Factory Operations

In the factory, a spacious building of some 140 feet in width and 400 feet long, floored in concrete and having a well-lighted and ventilated roof of corrugated asbestos sheeting, are carried out the manufacture of purée, the production of tomato juice, and the canning of tomatoes, vegetables, and all fruits in season. The entire procedure is visible at any one time to the manager or executive staff.

The plant for making tomato paste is of American manufacture and is the only one at present installed in the British Isles. This paste differs from the more commonly known purée as it contains as much as 28 per cent. solids. Processing consists of passing the



**Tomatoes for canning and purée making arrive at the factory.**



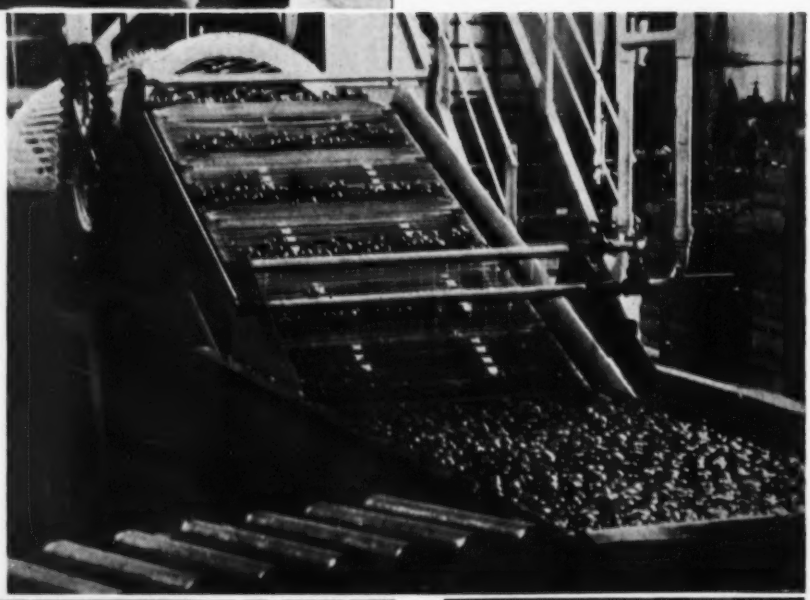
*Left:* **Tomatoes pass through the rotary washer—the first operation in the production of paste.**

*Centre below:* **Tomatoes are conveyed up an incline to a secondary rotary washer.**

*Below left:* **American paste plant showing vacuum pan (top left), three holding pans (on platform), and preheater for scalded tomatoes (bottom right).**

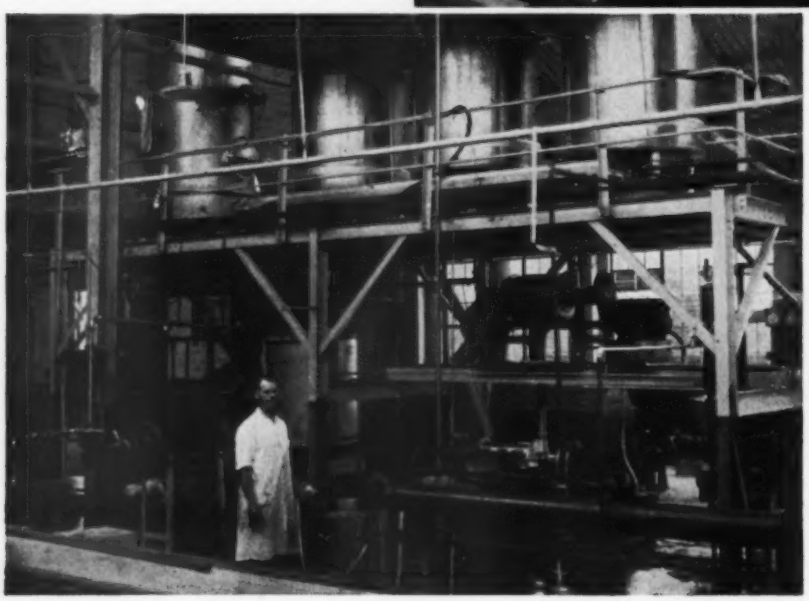
*Below right:* **The American bean snibber.**

fruit through a washer, and thence up an incline to a secondary rotary washer. Passing along an inspection belt where hand sorting is carried out, the tomatoes are taken through an inclined scalder fitted with steam sprays. This is known as the hot-break process, the fruit being crushed while warm and then passed through a heated cylinder.



**Treatment of the Pulp**

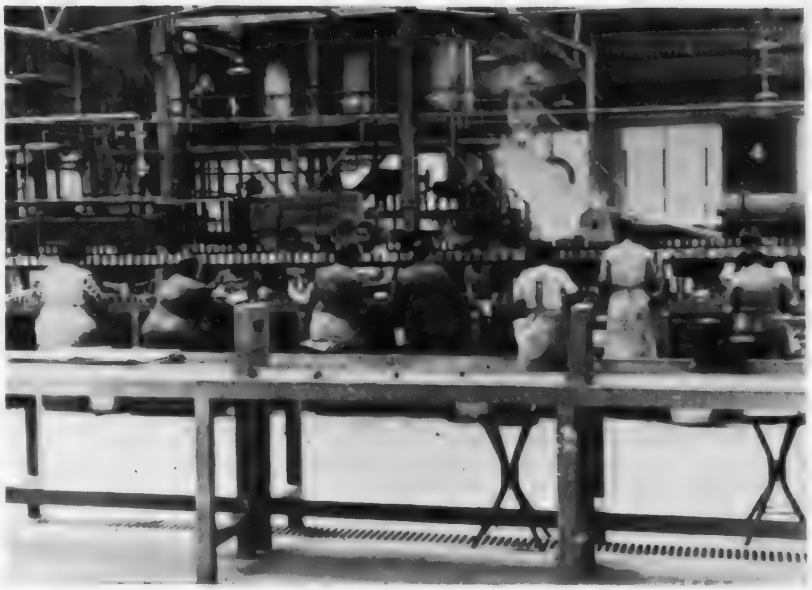
From this point the pulp is pumped up to a storage tank from which it runs down to the pulper finishers. These separate the skins, seeds, and stalks, and the juice is passed through a double



screen of diminishing mesh to a separate storage tank.

The contents of this tank are sucked into a vacuum evaporator, where they are converted from a juice containing 6 per cent. solids to a fine paste of a density between 28 per cent. and 30 per cent. solids. This passes to the final mixer where it is pre-heated to a temperature of 190° F., at which it is canned.

This process has been functioning on this spot for the past three seasons, during which time the present spacious factory has literally grown around its first home, which consisted of a sheet or two of corrugated iron which frequently blew away in a high wind.



**Down the centre of the factory, operatives label the canned goods.**

#### Tomato Juice Production

The preparation of tomato juice follows lines somewhat similar to that of the purée—the fruit passing through the washer, by elevator to the rotary washer, and along the inspection belt to a chopper pump.

It then goes through tubes preheated to 180° F. to the juice extractor, and is then pumped back again to the same pre-heater by a different set of tubes to the holding tank; filling is direct by rotary filler.

The final process consists of sterilisation in a rotary cooker, followed by cooling and finally labelling.

#### Fruit and Vegetable Canning

Three fruit and tomato canning lines, each capable of an output of sixty 30 oz. cans per minute, or proportionately according to size, have been installed down the centre of the factory.

After washing and selection the fruit passes to the filling tables where it is packed into the cans. The liquid is then added, brine for tomatoes and vegetables and syrup for other fruits. This is injected by rotary filler, after which the cans go through an exhaust box and are heated to a temperature of 180° F. to 190° F. and then sealed.

Cans containing fruit and tomatoes are now placed in the rotary cooker at 212° F., after which they are immersed in the cooler. Vegetables are, however, packed into skips and lifted into pressure retorts where they are cooked at 240° F. before cooling.

Among the other equipment is that used in the preparation of french beans for canning. This machine first grades the beans in three sizes, then passes them through two snibbers for topping and tailing.

#### Storage Facilities

These processes do not by any means occupy the whole space available in this vast store. A loft for cans and containers is situated on the first floor, which is approximately 140 × 100 feet in area and is serviced by an electric elevator. On the ground level in the rear of the factory is the warehouse with loading bays for the finished products, with floor space of 200 × 140 feet.

Beyond is the garage for the firm's own delivery vans, adjoining which is a series of filter beds of coke through which all used water must pass before running into the town drainage.

Four giant two-furnace coal-burning marine boilers of naval origin and varying capacity are housed at the side of the factory, together with a plant for cooling the water used in the evaporators.

#### Staff Welfare

Other features of the layout of this modern and hygienic factory are the large, airy staff cloakrooms and canteen, which can accommodate up to 100 at one sitting. Kitchens and a flat above for the caretaker, on the same floor as the store used for sugar and salt, complete the indoor accommodation. Space is also available for the erection of a carpenter's workshop or similar offices when needed.

For the greater part of the year the staff, working in shifts, numbers approximately 500. During the winter months half this number is employed.

#### SUPPLIERS OF EQUIPMENT

Rotary washer: *American Food Machinery Corporation.*
Vacuum evaporator: *Oscar Krenz, Inc.*
Can closing equipment: *The Metal Box Co.*
Fillers, rotary cooker, rotary cooler: *Mather and Platt.*
Installation of apparatus for canning: *F. J. Ballard and Co.*
Bean grader and cutter: *Chisholm Ryder Co., Inc.*
Water cooling plant: *Visco Engineering Co.*
Rotary cooker: *Dodman and Co.*
Precast concrete floors and roof slabs: *Triad Floors.*
Roofing (flat): *Ruberoid Co.*
Floor duct covers: *Dover Engineering Co.*
Partitions: *Flexoplywood Industries.*
Tiles: *The Carter Tile Co.*
Metal signs: *Buckleys (London).*

# Ministry of Food

## LATEST STATUTORY INSTRUMENTS

**The list given below is the continuation of the list of Instruments published in "Food Manufacture," September 1, 1950, page 362.**

| *No.* | *Date 1950* | |
|---|---|---|
| | | **PRICE FIXATION** |
| 991 | July | 1. Order amending the Feedingstuffs (Prices) Order, 1950. |
| 995 | ,, | 1. Order revoking the Pulse (Control and Prices) Order, 1943. |
| 1018 | June | 24. Order amending the Raw Cocoa (Control and Maximum Prices) Order, 1946. |
| 1118 | July | 11. Order amending the Feedingstuffs (Prices) Order, 1950. |
| 1341 | Aug. | 18. Order amending the Imported Canned Fish (Maximum Prices) Order, 1950. |
| | | **CHEESE** |
| 1069 | July | 2. The Cheese Order, 1950. Revokes S.I. 1948, No. 1062; 1949, Nos. 879 and 1721; 1950, Nos. 279 and 583. |
| | | **DISEASES** |
| 1126 | Oct. | 1. The Tuberculosis (Attested Herds) Scheme, 1950. |
| | | **EGGS** |
| 1076 | July | 2. Order amending the Eggs (Great Britain) Order, 1949. Revokes S.I. 1950, No. 860. |
| 1138 | ,, | 15. Order amending the Egg Products (Control and Maximum Prices) Order, 1946. Revokes S.I. 1949, No. 2041. |
| 1205 | ,, | 23. Order amending the Eggs (Great Britain) Order, 1949, and the Eggs (Northern Ireland) Order, 1949. |
| | | **FEEDINGSTUFFS** |
| 990 | July | 1. Order amending the Feedingstuffs (Rationing) Order, 1949. |
| 992 | ,, | 1. Order amending the Feedingstuffs (Licensing) Order, 1950. |
| 993 | Oct. | 1. Order revoking the Feedingstuffs (National Pigeon Mixture) Order, 1948. |
| | | **FLOUR** |
| 1313 | Aug. | 5. Order amending the Flour Order, 1947. |
| | | **FRUIT** |
| 1070 | July | 2. Order amending the Dried Fruits Order, 1949. Revokes S.I. 1950, No. 473. |
| 1141 | ,, | 18. Order revoking the Imported Deciduous Fruit Order, 1947. |
| 1176 | Aug. | 1. Order revoking the Home-grown Apples Order, 1949. |

| *No.* | *Date 1950* | |
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| | | **HOME-GROWN GRAINS** |
| 994 | July | 1. The Beans and Peas (Revocation) Order, 1950. |
| 1074 | ,, | 1. The Oats (Great Britain) Order, 1950. Revokes S.I. 1948, No. 1760; 1949, Nos. 1162, 1895, and 2038; 1950, No. 474. |
| 1075 | ,, | 1. The Oats (Northern Ireland) Order, 1950. Revokes S.I. 1948, No. 1763; 1949, Nos. 1163, 1895, and 2039; 1950, No. 474. |
| 1077 | ,, | 1. The Barley Order, 1950. Revokes S.I. 1949, Nos. 1185, 1186, 1895; and 1950, No. 442. |
| 1078 | ,, | 1. Order amending the Dredge Corn (Great Britain) Order, 1949, and the Dredge Corn (Northern Ireland) Order, 1949. Revokes S.I. 1950, No. 448. |
| 1079 | ,, | 1. The Rye Order, 1950. Revokes S.I. 1949, Nos. 1192, 1199, 1895, and 1748. |
| 1080 | ,, | 1. Order amending the Wheat (Great Britain) Order, 1949. |
| 1081 | ,, | 9. Order revoking the Home-grown Grain (Returns) (Great Britain) Order, 1943. |
| | | **MILK** |
| 997 | June | 18. Order revoking the Milk (Retail Delivery Restriction) Order, 1940. |
| 1062 | July | 1. Order amending the Milk (Great Britain) (General Licence No. 2) Order, 1950. |
| 1063 | ,, | 1. The Milk Marketing Board (Modification of Functions) Order, 1950. |
| 1064 | ,, | 1. Order amending the Use of Milk (Suspension of Restriction) Order, 1950. |
| 1234 | ,, | 31. Order amending the Milk (Great Britain) (General Licence No. 2) Order, 1950. |
| 1235 | ,, | 31. Order amending the Use of Milk (Suspension of Restriction) Order, 1950. |
| 1238 | Oct. | 1. Order revoking the Milk Marketing (County of Moray) Order, 1944, the Milk Marketing (County of Banff) Order, 1945, and the Milk Marketing (County of Orkney) Order, 1946. |
| | | **MINERAL OIL** |
| 1239 | Aug. | 1. Order amending the Mineral Oil in Food Order, 1949. |
| | | **POTATOES** |
| 1236 | Aug. | 1. The Seed Potatoes Order, 1950. Revokes S.I. 1949, No. 1722. |

# International Congress on Fruit Juice

**The second Congress of the International Federation of Fruit Juice Producers, held in Zurich from June 1 to 4, was attended by the delegates of sixteen countries. The largest representations were from the host country, Switzerland, and next in order, Germany, France, Austria, and Italy; there were four delegates from the United Kingdom. Although national organisations of fruit juice producers had been in existence before the war, the present International Federation was constituted only in 1948, when the first Congress was held in Paris. It is largely owing to the initiative of the Swiss and French national unions that the Federation has come into being and the organisation of this Congress devolved mainly upon their personnel.**

THE objects of the Federation are to establish a direct collaboration between the national associations and the producers of fruit juices in the different countries; to permit the exchange of information regarding legislation, processing technique, and improvements in production; to organise congresses with a view to studying the means necessary for furthering the production and consumption of fruit juices; and to put into effect, both collectively and individually, publicity in favour of fruit juices. The Federation will seek the co-operation of other organisations in attaining these objects.

**Congress Programme**

The programme of the Zurich Congress included reports and discussions on the scientific and technical aspects of fruit juice production and an exhibition and sampling of fruit juices from a wide range of producing countries. Advertising material was also exhibited, and some of the Swiss manufacturers of plant staged exhibits of trade literature. The organisation of the Congress was undertaken by the Swiss Fruit Union, and the use of the Congress House allowed all the functions to be sited under one roof.

The main business of the Congress took place during the first three days, the fourth day being reserved for a visit to the nearby apple juice and cider factory of Zweifel. The social side of the Congress was not neglected, and an official banquet and entertainment was given by the Swiss Fruit Union; an outing was arranged to the Uetliberg, when opportunities arose for renewing acquaintances and for informal discussion.

**Review of the Federation's Activities**

Opening speeches were made by Mr. H. Eggenberger (chairman of the International Federation of Fruit Juice Producers), Mr. J. Schmuki (Councillor of State, chairman of the Swiss Fruit Union and of the Organisation Committee), and by Mr. E. Nobs (Federal Councillor, Head of the Finance and Customs Department). The speakers outlined the functions of the Congress and the tasks that lay before it. They stressed the importance of the fruit juice industries in the general economy and the assistance they could render both to agriculture and to public health.

**M. G. d'Eaubonne, General Secretary of the Federation of Fruit Juice Producers, addresses Congress members.**

The development of the juice industries in Switzerland had been assisted by the co-operation of Federal and Cantonal authorities, and the beneficial effect of official interest was emphasised by the several speakers.

**Progress since 1948**

The General Secretary of the Federation, M. Gerard d'Eaubonne, reviewed the satisfactory progress made since the first Congress in 1948. There was general agreement on the aims and functions of the Federation, and its existence had been made known to those in all countries who produce, use, or sell fruit juices. A collection of data on the subject had been prepared, and the publication *Jus de Fruits* had permitted an exchange of information between producers in different countries. The Federation endeavoured to assist in the formation of national organisations of fruit juice producers in those countries in which they did not already exist and also to make direct contact with isolated producers.

One of the main aims of the Federation was to ensure the full utilisation of fruit supplies on a world-wide scale to benefit the grower, the fruit juice industries, and the health of the consumer; to attain this object it was necessary to obtain the co-operation of Government Departments in each country. The part which would be played by a healthy fruit juice industry in assisting the agricultural economy and the well-being of the consumer was one of the main themes of the Congress and was stressed by many of the speakers.

**Fruit presses at the Zweifel factory.**

**Nutritional Value of Fruit Juices**

The food value and health-giving properties of fruit juices were the subject of a report by Dr. Muller of the clinic *La Lignière* at Gland, who dealt with their general composition and the contribution they could make to human nutrition. They were to be considered essentially as sources of readily available energy, of vitamins, of salts and minor nutrients, and of accessory food factors. They were a natural foodstuff. Their low content of protein and fat had advantages, and they were to be considered primarily as energy-giving foods, making little or no demand on the digestive organs; grape juice had in fact been described as a "serum."

The calorific value of fruit juices was often greater than that of milk and was sufficient to maintain the energy balance; the net alkalising effect of fruit juices was an added advantage. There was an increasing realisation of the therapeutic value of fruit juices in many conditions; for example, in post-operative treatment, in fever cases, and in diseases of the heart and liver.

Their position as table beverages was established in America and Switzerland, but their value in providing a source of muscular energy was, however, not sufficiently recognised and their wider use by manual workers would improve both health and efficiency. When taken in quantity it was often an advantage to dilute fruit juices slightly; their sugar content was less obvious to the palate and their thirst-quenching properties were improved.

**The Phenomena of Oxidation**

The scientific and technical discussions were essentially concerned with the maintenance of the quality of the products, and the question of oxidation was discussed in its widest sense. A *résumé* of the present state of knowledge was prepared by Professor J. Lavollay of the Paris *Conservatoire des Arts et Métiers* and Dr. A. Patron of the *Institut des Fruits et Agrumes Coloniaux*; this was read by Professor Lavollay.

The lecture was concerned with the whole field of oxidation phenomena in fruit juices and covered enzymatic and non-enzymatic oxidation, oxidation inhibition, and the mutual reactions between juice constituents. The second part of the report dealt with the changes produced in fruit juices by these oxidation reactions and discussed the destruction of ascorbic acid, the development of off-flavours, and browning reactions. The report laid emphasis on the theoretical side of the problems and stressed the need for further fundamental work in solving the technical problems of the industry.

Some of the more technical aspects of the oxidation problems in the production and storage of fruit juices were touched upon in the discussion by later speakers. Reference was made to the inadequacy of methods for measuring indices such as oxidation-reduction potentials and the doubtful significance of the figures obtained. The practical problems of de-aeration and of bottling techniques were also considered.

**Methods of Production**

One session of the Congress was given over to a series of short papers on the present techniques of production, and covered the manufacture of apple juice, grape juice, berry juices, and concentrates. A particularly interesting feature of the session was the distribution of apple and grape juices during the presentation of the appropriate papers. In the discussion of apple juice by Mr. H. Zweifel of Zurich-Hongg, the general system of scoring juices was described and it was exemplified by the scores which had been awarded to the samples circulated.

The favoured position of the juice industry in Switzerland was attributed in great part to the maintenance of a uniformly good average quality in the product. This state of affairs was contrasted with the position in some other countries, for the Swiss fruit organisations had collected juices from all parts of the world and had often found wide variations in the quality of products on the market. It was better to ensure a good average quality rather than to allow both very good and very poor juices to enter the market; out of a total of 18 marks the minimum required in Switzerland was 12. The method of scoring for condition, bouquet, flavour, and marketability was brought out by the comments of the speaker and by the remarks of the audience, who queried some of the finer points of marking of the samples.

The general methods used in the production of grape juice were outlined by Dr. Giraudon, Director-General of *Les Etablissements Challand*, Nuits-St. Georges. It was evident that the industry made

extensive use of refrigeration, and the transport of refrigerated juice in insulated bulk containers has been used successfully for many years.

A reference to the use of sulphur dioxide as a means of juice storage provoked considerable discussion between Dr. A. Hartmann, who deprecated its use in view of the deleterious changes produced in grape juice, and Dr. P. Fabre, who maintained that the new methods available for desulphitation restored the full quality of the treated juice. The general view of the Congress was that further fundamental scientific work on the chemical and biological structure of fruit juices was required before an authoritative statement could be given.

**Juices from Soft Fruits**

The report on juices from soft fruits by Mr. A. Zweede of Wageningen described the extensive use of soft fruits in Holland, both on an industrial and domestic scale. The juices and syrups of red and blackcurrants enjoy a wide popularity in the home. In addition to straight juice products there is a considerable sale of diluted juices for beverage use, and these are essentially pure fruit products of high quality. In the later sessions of the Congress, the view was put forward that such beverages have a useful function and that they should be duly considered in drawing up regulations regarding fruit juice quality.

The question of quality was the main subject of the paper on juice concentrates by Mr. E. M. Correia of the Agronomical Institute in Lisbon. The speaker recommended that juice concentrates should be made only from selected fruit and that they should be classified and described according to the type (pulpy or clear) and the method of preparation; the latter should be restricted to vacuum evaporation or freezing.

**Exhibition of Fruit Juices**

Following the reading of papers, many delegates visited the exhibition of fruit juices and concentrates, where over a hundred samples had been assembled from a wide range of producing countries. They included apple and grape juices, berry juices and syrups, citrus, and tropical fruit juices. Concentrates and mixed juices were also exhibited. The products were of good quality, the juices varying in the degree of carbonation and in the extent of detectable pasteurisation flavour. They also varied according to the country of origin; for example, the apple juices showed some variation in acidity and colour according to the latitude of the fruit-growing region.

Some of the concentrates and juices prepared by freezing techniques were of exceptionally fresh fruit flavour. One of the more recent developments in this field has been the distribution of the juice concentrate in a frozen condition; the addition of the requisite amount of water gives a juice ready chilled for drinking. Citrus concentrates of this type have been developed in the United States in recent years, but the production of an apple concentrate by this method was one of the later developments shown at the Congress.

Grape juice is, to the average English palate, perhaps lacking in acidity, and it is often rather neutral in character, but, by using it as a base for mixed beverages or fruit cocktails, its character can be modified to meet a variety of tastes, and this use has been extensively developed in France, where mixtures with citrus juices, with apricot or peach or with combinations of several juices have attracted a wide public. A similar use of apple juice as a base has not yet been extensively developed, but it is now arousing interest.

**Propaganda for Fruit Juices**

The last session of the Congress was devoted to a discussion of the methods to be used in putting forward propaganda in favour of the production and consumption of fruit juices. The first speaker, Mr. E. L. Bauer of Berlin-Dahlem, outlined the main factors concerned, and stressed the need for data on the conditions actually obtaining in the different countries. The wide differences still to be seen in Europe between the juice-producing countries, both as regards the development of the industries and their financial situation, made a collective propaganda difficult. All were agreed, however, on the need for both collective propaganda on a national basis and for publicity by the individual producer.

Practically every speaker on this topic emphasised that the basis of propaganda must be the intrinsic merit of the product, *i.e.* that it must be a positive propaganda. It was the general view of the Congress that fruit juices and the traditional national beverages, wine, beer, and cider, were by nature complementary; they were both based on the products of agriculture and their produc-

**Apple storage silos at the Zweifel factory.**

tion ran side by side. In Switzerland, the production of apple juice and cider is almost invariably carried out in the same factory, and the manufacture of a wide range of products is found essential for economic stability. The disadvantages of seasonal production and seasonal demand are thereby lessened.

#### Quality the Prime Consideration

The speaker stressed that all changes in quality must be towards a still better product until fruit juices were universally recognised as being of the highest quality of beverage obtainable. To obtain wide recognition of the health-giving properties of fruit juices and of the part their production could play in assisting the agricultural economy, it was necessary to obtain the co-operation of both public and official bodies. The co-operation and interest which the industry had received in Switzerland was instanced as a case in point, and this had assisted its own considerable efforts.

To obtain the full benefit of general publicity, the representatives of the industry must themselves be familiar with every aspect of their product, with the maintenance and improvement of its quality, and with its distribution and sale.

#### Organisation of Publicity

In the discussion which followed, the part the International Federation could play in furthering fruit juice production was indicated, and one of its functions was shown to be that of assisting those countries which themselves were experiencing difficulty in organising publicity. The question of the nomenclature of juice products came up for discussion, and the useful function which the Federation could exercise in fixing norms for quality was also recognised. One delegate suggested the use of a National Mark Scheme by which each country could itself put forward a quality standard. The composition of the product would vary according to the region, but the standards would be mutually recognised internationally.

The second speaker in this session, Dr. E. Züllig, Head of the Wädenswil Trade School, laid emphasis on the part which could be played by a selected and trained personnel in directing the fortunes of the fruit juice industry. His remarks were of interest to a far wider audience than those present at the Congress, as the problems of selection and training are common to many industrial undertakings. In the fruit juice industry they were considered as of particular importance and especially at the present time when an attitude of superficiality was all too common.

#### Technological Education

The school at Wädenswil endeavoured to build up a professional nucleus of trained individuals with the background of character and knowledge required for a stable and prosperous industry. The quality of the product was of vital importance to the industry, and the personnel must hold the confidence of both the agricultural producer and the consumer. Dr. Züllig outlined the methods of selection and training in use and the part played by the School in technological education.

The impression given by the Congress was of a unanimity of purpose and a general agreement on all fundamental points at issue. There was no attempt at minimising the many difficulties at present experienced by the fruit juice industries, but at the same time there was evident a spirit of optimism and of confidence in the future. There was recognition of the important part which could be played by a conscientious industry in contributing to the agricultural economy and to public health.

#### International Collaboration

At the final session the following Resolution was passed and it was submitted to the appropriate Government Departments in all the participating countries:

"The 2nd International Congress of Fruit Juice Producers affirms the necessity of establishing an intensive international collaboration in the realms of science, technology, and propaganda. The way will thus be opened for a wider distribution of fruit juices. It would be appropriate to insist, much more than in the past, in all countries, on the health-giving value and the economic importance of fruit juices. The 2nd International Congress begs all persons of good will, each according to his function, to further the consumption of fruit juices."

*(Concluded at foot of next column)*

## Smoked Beans

WORKING on the theory that cheese, oysters, and turkey when smoked have been well received, W. V. Cruess and W. Rivera, Food Technology Division of the University of California, have carried out experiments to see whether a similar effect at lower cost could be attained by smoking beans (*The Canner*, **110**, 7, 1950).

After several preliminary treatments the following procedure was suggested as giving the most satisfactory results. After careful sorting the beans are washed thoroughly and soaked eight to ten hours in cold water. They are then cooked until plump, but not soft, drained, spread on trays, placed in a smoke house or smoke box, and smoked for two hours with dense smoke from oak shavings and oak sawdust, or spent, dried tan bark.

The beans are then cooked with tomato sauce and sliced onions or a little garlic. If the beans are canned, tomato sauce, a few slices of raw onions, and a little salt are added and the can exhausted in live steam for six to eight minutes, sealed, sterilised at 240° F. for seventy-five minutes, and finally cooled.

If it is desired to enhance the flavour and nutritive value, pieces of smoked fresh meat, such as pork or beef, may be added when canning.

The smoked beans may also be dehydrated and stored in jars for future use, or they may be frozen and distributed in that form. From the commercial production standpoint, canning would appear to be the most practical procedure.

# Food from the Commonwealth

PART II

**In the September issue of FOOD MANUFACTURE the contributions of Canada, New Zealand, Australia, South Africa, and the British West Indies to British food supplies were outlined on the basis of papers given at a recent meeting of the Nutrition Society. To complete the picture on a regional basis mention must be made of the activities of the Overseas Food Corporation in East Africa and Queensland. Reports by experts with specialised knowledge of individual staple foodstuffs, such as wheat, cereals, and dairy products, have next to be considered, with the aim of assessing the importance of the combined contributions from the whole Commonwealth in relation to our total supplies from all sources.**

THE conception of the East African Groundnut Scheme in 1946, at a time when the world food position in general, and that of the British Isles in particular, was giving rise to serious concern was recalled by Mr. N. R. Fuggles-Couchman. While we may now believe that much of this anxiety was unjustified, particularly in regard to grain, a serious shortage of fats still persists.

In Britain we now consume only 49 lb. per head for all purposes, as compared with 60 lb. before the war. Moreover, while we produce 45 to 50 per cent. of some of our other foodstuffs in Great Britain, we have to import 97 per cent. of our fat requirements. The Commonwealth can provide only some two-thirds of our present supplies, which means that the remaining third must be paid for in hard currencies.

It was therefore planned to open up 3,210,000 acres of empty bushland for groundnut cultivation, in the hope of eventually obtaining 250,000 tons of oil per year. So many problems and difficulties were encountered in the first three years, particularly in relation to weather, that the scheme had to be drastically reduced, with a target of only 600,000 acres of cultivable land by 1954.

It is intended that half this area shall be sown with groundnuts each year, with sunflowers, sorghum, grass, and possibly soya beans and safflower as alternative crops. On this basis we may hope for 57,000 tons of oil annually, equivalent to 63,000 tons of margarine. Some 84,000 tons of valuable cattle cake should also make an indirect contribution to our food supplies.

### The Queensland Scheme

The development of a second scheme in Queensland has been much more straightforward. Several old ranching properties, covering 480,000 acres, in which the carrying power had been seriously reduced by overstocking and lack of grass husbandry, have been taken over. About half the area is to be ploughed and planted with sorghum, which will either be sold as fodder or used to fatten pigs in three widely separated small areas near the coast. The land left unploughed will be used for grazing store cattle, which will be fattened on the sorghum stover. It is hoped that after 1951 about 80,000 tons of sorghum grain, sufficient for the production of 200,000 pig carcasses, will be grown annually.

### Meat Supplies

Dr. John Hammond estimated that before the war 40 per cent. of our meat supplies were imported, but that owing to the ploughing up of pastures, increases in our dairy herds, and the shortage of imported fodders we now have to import 55 per cent. of our supplies. The amounts of meat consumed have been limited by rationing rather than price, and for many years relatively little importance has been attached to the quality of meat. Recently, increased supplies have led to more discrimination and many people

**Four of the twenty-seven tractor-drawn machines engaged in planting sorghum on the area covered by the Queensland scheme.**

**Combine harvesters reaping the first sorghum crop in May, 1949. It is hoped that by May, 1951, some 160,000 acres will be harvested.**

are failing to take up their rations when poor meat is offered.

Being unable to afford our pre-war purchases of beef from the Argentine, and with most of our concentrated feedingstuffs required for dairy cows, we now obtain our supplies mainly from British animals fattened with grass in autumn. In the absence of more adequate storage facilities in Great Britain, therefore, imports of beef are most welcome between January and July, when grass-fattened animals are not available.

With mutton and lamb the situation is much the same; without our increased imports from New Zealand during recent years we should have gone very short during the first half of the year. Additional supplies from Australia will be very welcome.

British pork supplies are still very low, as home supplies of pigs are kept down by poor supplies of maize and by the continuation of the high extraction rate of our flour,* which leads to the inclusion in our bread of wheat offals formerly used for pig feeding. Such pigs as are available are now diverted to bacon production. Supplies from the Continent might involve danger to our livestock through foot-and-mouth disease or swine fever. Possibly home supplies may be increased if sorghum and soya bean products can be successfully provided by Australia and Africa.

Poultry meat is already being imported from the Continent, but at considerable risk of introducing fowl pest. Increased supplies from Australia would be welcome, but poultry is unrationed, and the amount consumed will depend largely upon its price.

**Sir Henry Turner and Mr. F. Willey examine carcasses of sorghum-fed steers owned by the Queensland British Food Corporation.**
*Courtesy Farmer and Stock-Breeder.*

* The rate has now been reduced to 81 per cent.

#### Position of Cereals

It is perhaps insufficiently realised how far questions of quality, as well as quantity, must be considered in procuring adequate wheat supplies. Flour rich in protein is not only more nutritious than flour low in protein, but is essential for baking bread of good texture.

Dr. A. Green stressed the superiority of Canadian wheat containing 12·5 to 13·5 per cent. protein over Australian wheat containing only 8·9 to 11·1 per cent. Wheat grown in Britain is also low in protein. To bake good bread from either Australian or British wheat it is therefore necessary to mix in an adequate proportion of Canadian grain.

#### Bacon Supplies

In 1938, according to Dr. E. C. Callow, our bacon supplies amounted to 10,727,600 cwt. Of this total, 1,500,000 cwt. came from Canada, 500,000 cwt. from Eire, and 300,000 cwt. from Australia and New Zealand. Imports from all parts of the Commonwealth amounted at that time to 22 per cent. of our total supplies. In 1949 our supplies were only about 6 million cwt., of which 893,000 cwt. came from Canada and only 24,000 cwt. from Eire, with Australia and New Zealand sending us 150,000 cwt. of frozen pork. The Commonwealth contribution had dropped to 18 per cent.

The sparsity of our supplies was largely because of our inability to find dollars to pay Canada, and the fact that Eire had only recently resumed her exports to Britain. The results of the sorghum grain scheme in Queensland will be awaited with interest by bacon producers in Britain. The discovery of a cheap and plentiful source of vitamin $B_{12}$, the cobalt-bearing "animal protein factor," would also greatly facilitate pig production.

**Fruit Consumption**

Data reviewed by Dr. R. G. Tomkins showed that while in 1936 we consumed 84 lb. of fruit per head, of which about one-quarter was home-grown, in 1947 we consumed 76 lb., of which half was home-grown. At one time we imported 45 per cent. of the world's exports of deciduous fruit and 35 per cent. of the citrus fruit exports. Our present reduced supplies of oranges are in part owing to a fall in production below the pre-war level in the countries which supply us, but to a large extent concentrated orange juice is being used as a substitute for the fresh fruit.

In continuing the present tendency to return to our pre-war pattern of fruit consumption, we may look forward to New Zealand supplying us with more apples, Canada with more apples, dried apples, and fruit pulp, Australia with more fruit juices, tomato juice, and fruit cakes, and South Africa with more grapes, deciduous and citrus fruits, canned fruits, and fruit juices.

**Dairy Products**

During and since the war years, according to Dr. E. Capstick, milk production in Britain has been increased by 29 per cent., but the heavy demands of the National Milk Scheme and other social services have left the amounts available for the manufacture of butter and cheese considerably below the pre-war level. A comparison of our 1949 and pre-war consumptions shows that we now eat about 310,000 tons of butter annually as compared with 499,000 tons, 238,000 tons of cheese as against 180,000 tons, and 65,000 tons of dried milk as against 29,000 tons. These increases in consumptions of cheese and dried milk must be offset against decreases from 147,000 tons to 65,000 tons in full-cream condensed milk and from 129,000 tons to 40,000 tons in machine-skimmed condensed milk.

The production in Britain of both butter and cheese represents only a small fraction of the total consumption. Thus butter production, which was 19,000 tons annually before the war, is now only 8,400 tons, cheese production was 38,000 tons and is now 37,000 tons, but we are now producing much of our requirements of condensed milk and dried milk.

**A windrowing machine at work on one of the groundnut fields at Kongwa.**
*Crown Copyright Reserved.*

The great decline in butter consumption may be partly owing to the cessation of supplies from countries now behind the "Iron Curtain" which before the war supplied us with about 60,000 tons annually. If the food subsidies are eventually to be reduced, and dairy products are to be sold at prices approximating more closely to their production costs, it is doubtful whether our consumption will ever return to its pre-war level.

Demands for cheese may fall when more meat is available, but Commonwealth cheese - makers might be well advised to make less Cheddar cheese, and more of the less acid types such as Gruyère, Edam, Gouda, and Port Salut.

The introduction of dried milk into flour for bread making would benefit both our state of nutrition and the prosperity of Commonwealth dairy farmers.

**Fat and Sugar**

Mr. C. H. Clarke pointed out that margarine and soap manufacturers experience great difficulty in keeping up the quality of their products without being allowed their own discretion to procure the fats most suitable for their purpose. Palm oil is much used in these industries, and is cheaper to produce than groundnut oil. In view of the long time necessary for palm trees to reach maturity, however, the Overseas Food Corporation was probably correct in its decision to grow groundnuts.

Increased sugar production in the West Indies, as emphasised by Mr. P. Lyle, is highly desirable both to save dollars for Britain and to provide a living for the rapidly expanding native populations. While yields of 4 tons of sugar are generally considered satisfactory, special experimental plots have given 8 to 9 tons. Various steps might also be taken to improve the standard of living in the islands.

Meat and condensed milk have at present to be imported, and the institution of more dairy farms would be advantageous; a start in this direction has already been made in Barbados.

The production of bananas should be greatly improved by the introduction of two new strains resistant to Panama disease.

A factory for the production of food yeast from molasses is already in operation in Jamaica, but the present small demand for the material has not allowed the continuous operation necessary for its production at a low cost. Hopes are entertained that a new type of yeast, *Rhodotorula gracilis*, of

(*Concluded on page* 412)

# Prevention and Control of Food Poisoning

THE appearance of a third edition of Mr. Dewberry's book* on food poisoning some six years after the appearance of the first edition is a tribute not only to its usefulness, but also to the increasing interest being taken in this subject.

The first edition gave the impression that it was a thesis on a subject of which far too little was known. In fact even now there are only about two authors who really endeavour to cope with what is an extremely complicated subject, and one can but admire the courage with which Mr. Dewberry is trying to marshal his facts.

In the short space of six years the volume has nearly doubled its size, and some chapters now occupy more than twice the space devoted to them in the first edition. Possible sources and modes of infection, Chapter VI, were formerly given 10 pages and now receive 24, prevention and control, Chapter VII, originally given 15 pages, now receive 44.

Although the author gives a table showing the large increase in the number of cases of food poisoning as the war progressed, it would be an advantage if more emphasis were given to the increasing risk due to carriers and also to the slow cooling of cooked foods due to the handling of larger bulks in cantéens and restaurants. Likewise more judicious discouragement should be given to the home canning of meat and fish, especially in view of the advice given in "The ABC of Preserving," issued by the Ministry of Food, which states: "Even with a pressure cooker, this is extremely difficult to do under home conditions. As serious food poisoning can be caused by meat, fish, or poultry which has not been properly sterilised and sealed, you will be well advised not to attempt this at home."

In view of the permission given by the Ministry of Health for the use of hypochlorites in dairies, some encouragement should be given to the use of this chemical in food factories, not to replace detergents, but for spraying and rinsing down, once the benches, walls, and floors have been cleaned. In the reviewer's experience mere flooding with soapy water does not suffice, and slaughterhouses and canneries where sodium hypochlorite is employed are usually more efficient in most ways than are those where it is not used.

Under the heading of edible and poisonous fungi references given to literature dealing with edible fungi would be useful, as it is preferable to instruct the public on what they may eat rather than to point out what has been found to be definitely deleterious.

While the author claims no originality for his book, most people would agree that its conception is original, because so few others have ventured to write on so controversial a topic, and on one which is still in its infancy. Perhaps it is for this reason that he has tended largely to quote from others, and it is hoped that the reviewer may be forgiven for suggesting that the time has now arrived for future editions to be drawn up more on the basis of personal experience. This will probably make for better classification from the reader's standpoint and provide a better perspective to a constructive policy for the avoidance of food poisoning, as distinct from a discussion of a number of individual cases of actual poisoning.

The bibliographical references are placed at the end of each chapter, and the value of this in contradistinction to placing them comprehensively at the end of the volume is a matter of personal preference. The reviewer prefers that they should be at the end on the grounds that it is impossible to confine the discussion on any one aspect of the subject to individual chapters.

If the author will consider some of these suggestions when arranging the fourth edition, which will no doubt be in demand before long, he will increase our indebtedness to him.—T. McL.

* *Food Poisoning—Its Nature, History and Causation. Measures for its Prevention and Control.* By Elliot B. Dewberry, M.B.E. Pp. 318+xii. Leonard Hill, Limited, London. Price 17s. 6d.

## Food from the Commonwealth

(*Concluded from page 411*)

which the dry matter contains 23 per cent. protein and 42 per cent. fat, will give impetus to this new development of the sugar industry. By growing yeast directly on sugar cane extract it should be possible to obtain a very high yield of protein per acre, equivalent to about 20 head of cattle.

### Future Progress

The conference must be considered to have succeeded in its purpose of giving a bird's-eye view of our sources of food from within the Commonwealth, and in indicating the difficulties to be overcome in increasing supplies. Thus it has been made clear that in the case of Canada the shop window is full, but our purse is nearly empty. We can afford to buy our bread and cheese, but not our bacon and eggs. In South Africa the great expanses on the map are somewhat deceptive in their suggestion of possible sources of food supplies. In New Zealand and Australia innumerable dairy farmers, short of labour, assiduously tend their herds to procure the butter for our daily bread, while the sheep farmers supply our mutton. In East Africa modern mechanism and the British taxpayer, helped no doubt by Marshall Aid, are engaged in a grim struggle with untamed bush land.

### Back to the Land

The solution to both our economic and nutritional difficulties, as Dr. Slater suggests, might be found if a greater proportion of the Commonwealth's population could be persuaded to work on the land. By the extensive adoption of improved industrial techniques the transfer of an adequate number of factory workers to farm work, both at home and overseas, should be quite possible without any serious decline in our output of manufactured goods.

**TO AUTHORS**

**FOOD MANUFACTURE is prepared to consider the publication of any books on scientific and technical subjects which authors might care to submit.**

# The Determination of Moisture in Organic Substances

**Part IV**

C. F. M. FRYD, B.Sc., A.R.C.S., A.R.I.C.

**One of the problems always facing the commercial or routine analyst is that of obtaining a representative sample on which to perform his analysis. The fortunate few may be able personally to carry out an examination of the bulk for which they are expected to present moisture figures ; the less happy majority must accept samples taken only too often by hands unskilled in the niceties of scientific manipulation. It is for results obtained by the examination of samples obtained from a mere fraction of the bulk that the calculations of the statistician are most useful, but if much wasted effort is to be avoided, his aid should be requested before the samples are drawn.**

THE sub-science of statistics, as its exponents will be the first to admit, cannot obtain from data any information not inherently present therein; the chief advantage which its use promises is the avoidance of unrewarded repetition. In routine analysis, the statistician, in combination with the analyst, should determine not only the maximum precision of the analytical technique, but also the maximum precision of the sampling procedure. While the analyst may reasonably do his best to improve the repeatability of his own part of the work, and obviously may make any suggestion about the actual technique of the sampler which appears reasonable, he should defer to the statistician entirely when the question of the frequency of sampling or the optimum number of samples per given weight or bulk is for consideration.

This does not mean that the analyst should relinquish responsibility. Methods of sampling have been proposed which, in an attempt to establish fairness and homogeneity, have introduced so many operations of mixing and resampling that the original material has dried to a measurable extent during the procedure.

### Preparation of the Sample

The presentation of the sample during analysis in such a form that the moisture contained therein may readily be evaluated is a perennial problem to the chemist concerned with organic substances. Materials of a glutinous nature or those containing sugar in solution are particularly liable to form tough and impermeable skins through which any residual moisture passes with great difficulty.

An obvious method of minimising this effect is the spreading of the sample in very thin layers, and this is customarily carried out by mixing the material with several times its volume of some inorganic substance. Sand, glass beads, asbestos, pumice, and kieselguhr are all used for such a purpose. Organic material, such as cotton or filterpaper (previously dried), has also been proposed, although the special virtues needed to counterbalance the obvious dangers connected with such use are not at first apparent. The process known as lyophilisation[6] has already been mentioned; in this procedure the sample itself is made ingeniously to provide its own mechanically extended support.

### Some Difficult Sample Materials

The determination of moisture on semi-liquid meat extracts has proved by no means a simple task, and many methods have been proposed during the last twenty or thirty years. The substance is particularly liable to form a tough skin of the type described above, and, in addition, it contains sensitive protein material which may decompose to evolve water in conditions not normally regarded as drastic. Since it contains biological colloids, the question of free and bound water further complicates the issue; and, in fact, most workers who have examined the problem have reached the conclusion that precision or repeatability is all that can be obtained, and these only by the very close control of conditions.

### Preliminary Dilution

Riddle[30] mentions that it is customary, if determining moisture on such material by oven methods, to take an aliquot of a diluted sample solution, and to disperse it on several times its weight of sand. He points out that not only is the exact ratio of sand to extract of importance, but also that the degree of preliminary dilution plays its part; the apparent moisture increases quite noticeably as such dilution is increased. Riddle attributes this to the more impermeable surface skin formed with the stronger solutions; but others have argued that the necessarily greater quantity of heat required to volatilise the extra water may also contribute to the effect by increasing the thermal decomposition.

Various modifications of the Dean and Stark entrainment procedure have been proposed for meat extracts; in particular distillation from xylene under a reduced pressure of, say, 50 mm. of mercury, and consequently at a temperature not exceeding *circa* 50° C. The consequent swelling up of the material is said to promote the evolution of water, and the low temperature to minimise skin formation and decomposition. Where time and apparatus allow, the employment of the lyophilisation technique might be considered;

a somewhat similar procedure is almost universally employed in the drying, without apparent decomposition, of plasma and similar sensitive biological material.

#### Carbohydrates and Sugars

The determination of water in carbohydrates presents some problems. In starches, the moisture is held in such fine interstices that the vapour pressure of the water is considerably below that normal for the temperature. In consequence, higher oven temperatures are needed if the moisture is to be removed within a reasonable period, but chemical decomposition may then occur.

Sprockhoff[31] suggests fifteen to twenty minutes at 100° C., followed by some thirty minutes at 140° to 150° C., the brief time under these conditions being less destructive than the longer periods necessary at lower temperatures. Even higher temperatures for shorter times have been proposed. Sair and Fetzer[32] on the other hand are satisfied with the more conventional toluene distillation, or the vacuum oven at 100° C.

Sugars, especially reducing sugars, are frequent sources of trouble, especially when associated with acids, organic or otherwise. The optimum *p*H for the least decomposition is *circa* 5, and alkaline conditions should therefore be avoided; but as excess acidity is by far the more common condition in foodstuffs containing sugars, the possible advantages of the addition of a measured volume of lime water or barium hydroxide solution should be investigated in troublesome cases. After exposure to dry $CO_2$, the calcium or barium may be calculated as carbonate and the necessary deduction made.

A special case of the determination of moisture in sugars occurs when an attempt is made to estimate residual water in a "sugar glass" such as a hard-boiled sweet. The sugars in such a sample will consist of sucrose and invert sugar. Some organic acid will be present, together with perhaps 1 per cent. or even less of water. Estimation of the water by difference is not impossible, but will prove troublesome and lengthy. Oven methods will be found to give erratic results, depending on the fineness of grinding of the sample and the proportion of acid present. Dispersion of the sample on an inorganic medium will prove difficult, and the various versions of the Dean and Stark technique produce almost as many errors as direct oven drying.

This is clearly a case for employing the Karl Fischer reagent, and the only difficulty in using it is that of dispersing the sample in methanol or other inert solvent. To some extent the sugars present are soluble in methanol, but the operation may be hastened if some mechanical aid is provided. Mitchell and Smith[33] suggest a Waring Blendor or similar device, but a modified pestle and mortar operating in a closed vessel under a slight positive pressure of dry nitrogen would be preferable. The commoner organic acids do not interfere; ascorbic acid is unlikely to be present in quantities sufficient to produce a marked inaccuracy.

#### Glycerinated Egg Yolk

Glycerinated egg yolk is a product for which the older methods have proved somewhat less than precise. The substance is unstable in itself, and the glycerol present is volatile under substantially the same conditions as (although at a lower rate than) the water content. Coagulation and denaturing of the protein occur with entrainment distillation methods; and decomposition of the protein is very likely to take place, as is the production of acrolein, etc., during the prolonged distillation necessary to extract all the water. In any case it becomes necessary to estimate glycerol in the aqueous layer and to make a corresponding adjustment. The Karl Fischer technique is again of service, the sample being preferably dispersed in a high-speed blender with a measured excess of methanol. It may be found desirable after equilibrium has been established to allow the mixture to settle, and to remove an aliquot for the actual water determination from the supernatant layer. The glycerol present will not interfere. Denaturing of the egg proteins by the alcohol cannot be prevented, however, and for this reason a hydrocarbon such as decalin might be found of use as an alternative in very precise work.

#### Viscous Substances

Glues, gelatins, albumens, and similar materials have always presented difficulties to the analyst who wishes to estimate their water content. Almy and others[34] have discussed the use of the Fischer reagent as a preferred method, but have found it necessary to dissolve the sample in glacial acetic acid. They recommend solution or partial solution of the sample in the acid overnight with the slightest warming. Resinous natural products, including drugs, would presumably yield to similar treatment.

A problem of a different kind is exemplified when it is required to estimate moisture rapidly on samples which, since they contain large quantities of water and cellulose with but little soluble material or electrolytes, are easily examined by oven methods. The problem is thus one of obtaining almost instantly results strictly comparable to quite accurate oven determinations. Meters based on changes in resistance or relative humidity would prove quite useless since the sample is of the nature of a sponge saturated with more or less pure water, but electric meters based on pure capacity measurement only would doubtless prove of service.

#### Trends in Moisture Analysis

It is not possible to predict with any precision the future of a branch of science, although indications may be given as to some of the lines along which development appears most probable. An increase both in the demand for a high standard of repeatability of moisture determination, and in the provision of apparatus for supplying it may confidently be expected; and, while the intervention of the chemist will probably always be required, the more fre-

quent use of the semi-automatic and even the self-recording moisture meter is likely. Of these, the emphasis will almost certainly be on types which are based on physical measurement; there is still room for considerable improvement in instruments based on the determination of electrical capacity or resistance.

It may, for instance, be found possible to determine simultaneously in one instrument a large number of measurements of capacity or resistance on one sample. Among such a series of determinations will be found some which are anomalous; these are produced as the result of purely local conditions and are the cause of some of the lack of precision occasionally associated with moisture meter results today. By the use of circuits similar to those employed for the automatic volume control or the interference suppressor in modern radio sets, such anomalous results may in the future be electronically removed, and a selected average figure presented which is more closely characteristic of the sample material.

#### The Factor of Relative Humidity

Again, more use may be made of the fact that the relative humidity in equilibrium with a given material bears a close relation to its moisture content. It is true that such relative humidity is also slightly affected by the cellular nature of the material, but, for most organic samples, variations in the size of the cells and capillaries are not sufficiently wide to produce a sensible alteration in that relation.

The micro-atmosphere in and around most materials in the factory or warehouse has reached very closely the equilibrium relative humidity; and if robust devices which would give instantaneous readings of this characteristic were available, it would be possible to determine moisture on large quantities of stock (or even continuously on the production belt) with considerable accuracy. For such a device to be successful, it would be necessary for the chemical composition, at least of the water-soluble components, of the material to remain constant within close limits, and for the measuring device itself to be enclosed in a probe or knife which would pass through the bulk of the material.

Devices which remove fractions of the sample, and particularly those which withdraw small portions of the atmosphere in the interstices of the sample, operate under additional disadvantages. The process of aspirating air through a sample and out to an external mechanism, for instance, involves pressure changes which in themselves upset the equilibrium between the sample and its micro-atmosphere.

#### Future Use of Drying Ovens

The foreseeable future affords no grounds for supposing that drying ovens will cease to be the most widely used tools of the moisture chemist. It is certain that the oven will be modified; temperature, ventilation, and pressure have already been mentioned, and the limits of control of all three will undoubtedly be narrowed. The rate of initial heating may in the future receive more attention; in the Government Laboratory, experiments have been undertaken in which the pans containing the samples were floated in a pool of Wood's metal in order to provide the maximum rate of transmission of heat by conduction. The results of the experiment were sufficiently significant to establish that, where very high precision is needed, the rate of heating of the sample must be standardised.

R. W. Money[23] and others have pointed the way to what may well become another trend in the design of the oven of the next decade or so. In his device the oven is treated as a tool for the examination of one individual sample, and no attempt is made to use it as an economical instrument for the determination of results in bulk.

Out of such an approach may emerge what might be termed a miniature cyclone drier—a device in which a weighed quantity of the sample would be whirled round at high velocity in a closed container for a matter of seconds or minutes with a suitable volume of dried and preheated inert gas, and subsequently filtered off through, say, sintered glass for weighing. The last traces of moisture might even be washed through with a further portion of dried gas, with perhaps an extremely sensitive indicator on the further side of the filter. Overall speed, and particularly the lack of time in which chemical decomposition could occur, would represent important advantages for such a technique.

#### The Karl Fischer Technique

For the very accurate determination of moisture as distinct from total volatiles, it would appear that the chemist of the future will rely more and more on the Karl Fischer technique, or some development of it. It cannot be claimed that the present procedure is perfect; indeed, while the reagents show the consistent if slow degradation associated with them, and while, for instance, the presence in a sample of reducing substances may involve corrections of dubious extent, there is obvious room for improvement.

Yet the principle behind the method, that of treating water as a chemical reagent to be titrated rather than removed, is the obvious basis of precision; development must be upon the lines of the removal of interference by suppression of the interfering substance. In this direction, however, as is the case with each of the various methods by which moisture is determined, only one thing is certain—finality has not yet been attained.

THE author wishes to thank his colleagues in the Government Laboratory for their help in the writing of this article, and the Government Chemist for permission to publish it.

REFERENCES

[6] Makower, *J. Ind. Eng. Chem.* (*Anal.*), **20**, 856, 1948.
[23] R. W. Money, *Analyst*. (To be published shortly.)
[30] Riddle, *J. Council Sci. Ind. Res.*, **17**, 4, 291, 1944.
[31] Sprockhoff, *Z. Spir. Ind.*, **52**, 27, 1929.
[32] Sair and Fetzer, *J. Ind. Eng. Chem.* (*Anal.*), **14**, 843, 1942.
[33] Mitchell and Smith, "Aquametry," Interscience Publishers, N.Y., 1948, p. 200.
[34] Almy *et al.*, *J. Ind. Eng. Chem.* (*Anal.*), **12**, 392, 1940.

# The Vinegar Puzzle

IN November, 1949, the Chief Metropolitan Magistrate, Sir Laurence Dunne, delivered a reserved judgment in a case brought under the Merchandise Marks Act by the Malt Vinegar Brewers' Federation against a Mr. Kat, whose defence was arranged by the Association of Non-Brewed Vinegar Manufacturers. Sir Laurence's opinion was that it is illegal to describe coloured, diluted acetic acid as Non-Brewed Vinegar, and that only a substance which has undergone a double fermentation process, alcoholic and acetous, should be described as vinegar. An appeal was made to the High Court and the Lord Chief Justice, Mr. Justice Hilbery, and Mr. Justice Byrne have recently upheld the decision of the Chief Magistrate.

### Repercussions of the Case

This decision must have far-reaching repercussions. The case serves once again to illustrate the muddle which is being caused in Great Britain through conflicting decisions. It was admitted during the hearing of the case that the Ministry of Food had granted licences to between 400 and 450 manufacturers of non-brewed vinegar, and the Court has therefore decided that the Ministry of Food has made an error in so doing. The Chief Magistrate had stated in his verdict that the term "Non-Brewed Vinegar" consisted of the words "vinegar" as the genus and "non-brewed" as the species. This decision was upheld by the Court of Appeal.

In the main we agree with the viewpoint that the term "vinegar" should be restricted to the product of double fermentation, but we do not agree with the premises by which the case has been decided. In the first place we do not agree that the word "vinegar" used without restriction should be malt vinegar. The word is derived from *vin aigre* and, in our opinion, should therefore be reserved for wine vinegar, unless duly qualified by the prefix malt or some other description. It is ludicrous that wine vinegar is the product to be called vinegar in France, cider vinegar is the official vinegar of the United States, and malt vinegar the recognised vinegar of Great Britain, just because they are the vinegars in the largest supply in each case.

The most confusing issue of this case, however, is the decision of the Chief Magistrate regarding the genus and species of non-brewed vinegar, when one considers the case of cream in confectionery as decided by the High Court in 1931. It was then held that chocolate cream sandwiches and vanilla cream sandwiches not containing cream might properly be described as such. Following this argument it should be appreciated that the term "non-alcoholic wines" should be discontinued immediately, because non-alcoholic cannot possibly be a species of wine, which must result from alcoholic fermentation. Just as we may have wine vinegar, cider vinegar, and malt vinegar, so we may have raspberry wine, damson wine, and so on, but not non-alcoholic wine.

### Legality of Definitions

It took our American friends to press us to rename egg substitute powder "golden raising powder," but we still have custard powder and bun flour. In view of the legal definition of artificial cream, one wonders whether the term "artificial vinegar" will be permissible for coloured, diluted acetic acid or whether it would be wiser to call the product "synthetic vinegar substitute." It is within our memory that what is now generally called ginger beer was sold as "non-brewed ginger beer," but it should certainly not be described as ginger beer, and, apparently, not as "non-brewed ginger beer."

In general the fallacy of High Court decisions or those of any other Court is that the decision must be given on the weight of the evidence, which is produced in individual cases. At times, this evidence is mainly influenced by a junior legal adviser, who largely decides what weight of evidence is to be called. Moreover, the oratory of Counsel and the weight of his reputation often play an important part in Court.

The English language is truly a trap for the unwary. The words butter, milk, and cream may describe a bewildering assortment of substances such as butterscotch, peanut butter, butter of antimony, butterwort, buttercup, milk of magnesia, milk of sulphur, Bristol milk (for a particular blend of sherry), ice cream, face cream, cold cream, salad cream, and cream of tartar. Homer himself would nod if he tried sorting things out.—THOS. MCLACHLAN.

NOTE. Circular M.F. 15/50 dated August 16, 1950, addressed by the Assistant Secretary, Ministry of Food, to Food and Drug Authorities and Public Analysts, states: "I am directed by the Minister of Food to call your attention to the judgment given on July 21, 1950, in the recent case of Kat *v.* Diment, which was heard in the High Court of Justice, King's Bench Division (Divisional Court) by way of a Special Case stated by the Chief Magistrate of the Metropolis. The Chief Magistrate has held that the application of the description "non-brewed vinegar" to a solution of synthetic acetic acid put up as a condiment was a false trade description and an offence against the Merchandise Marks Act. This decision was upheld by the Divisional Court. Accordingly I am instructed to advise you that the Code of Practice relating to Vinegar and Solution of Acetic Acid, printed at p. 55 of "The Advertising, Labelling and Composition of Food" (H.M. Stationery Office, 1949) has been withdrawn."

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# Our Contemporaries

CONSIDERABLE activity in the fundamental developments of centrifuges is reported in a review of centrifugation published in the September issue of *International Chemical Engineering and Process Industries*. In his article, Mr. E. Broadwell outlines the applications of centrifuges in the processing of such products as oils, soap, starch, sugar, and yeast.

In the same issue is contained a description of the large-scale production of fish liver oils in New Zealand. This covers an account of the production of oils and processing methods of the Island Bay factory of the Karitane Products Society.

# Food in Collapsible Tubes

SPECIALLY CONTRIBUTED

**In the mid-nineteen-thirties several food manufacturers became interested in the possibilities of collapsible tubes as consumer packs for containing proprietary branded products in emulsified or semi-liquid form. After preliminary investigations in conjunction with the tube makers, experiments were carried out, and within a few years a coffee preparation, ready-mixed mustard, and several varieties of fish paste were packed in this way. They had just begun to find favour with the public when the war came in 1939.**

FROM 1939 until the cessation of hostilities the productive capacity of the makers of collapsible tubes was primarily concentrated on their production for war purposes—for example, single-dose morphia tubes fitted with hypodermic needles, tubes for anti-gas pastes, and tubes for ointments of many different kinds. Thus, through force of circumstances, what had appeared likely to prove an important advance in food packaging methods was temporarily shelved.

The demand immediately after the war for a return to use of these popular flexible packs for products that had had perforce to be packed in less satisfactory ways, combined with a shortage of materials and labour, further delayed their wider application in the food industry, and it was not until 1949 that collapsible tubes were again taken up by the firms who had made early experiments.

### Development of Lining Techniques

Meanwhile, other food manufacturers, as well as the makers of the tubes, had been carrying out investigations into the ways and means of lining the tubes, so that foods could be filled into them without coming into direct contact with the metal, although subsequent research has proved it possible to pack certain sugar-based food products in unlined tubes without risk of unfavourable reactions; examples of this are most kinds of honey, jam, and sweetened condensed milk.

The development of a lining technique presented many difficulties to the collapsible tube manufacturers, as the qualities necessary for the linings used in these flexible containers are different in many respects from those needed in the lacquer used for canning. Tube linings must possess the same degree of flexibility as the metal to which they are attached. They must not fracture or chip when the tube is squeezed, rolled, or flattened. While attaining a considerable degree of hardness, they must retain their pliability throughout the life of the tube.

### Experiments with Stoving Lacquers

Early experiments with some of the stoving lacquers revealed that the phenolic varieties were insufficiently plasticised and were thus too hard for the purpose. High-stoving lacquers have since been developed in several different forms suitable for the purpose, with the additional advantage of possessing a higher degree of immunity to chemical reaction. But some counterbalancing disadvantages are that they are more costly than low-stoving lacquers, and involve a different order of processing, because the enamel forming the outer surface of the tube will not stand up to the high temperature at which the stoving has to be carried out. The lining has, therefore, to be applied to the tube before it is enamelled and printed.

Another alternative as a lining material is wax, the cost of which is approximately the same as that of low-stoving lacquers. The waxes are comparatively inert substances, do not involve the use of high-stoving apparatus, and form an entirely satisfactory coating as a barrier between the inner wall of the tubes and a large proportion of the product with which they are filled. Waxes are not so susceptible to ageing effects as either of the two classes of lacquers.

In the United States more use

**An exhibition display of internally lacquered collapsible tubes.**

**Strawberry jam is among the products now packed in collapsible tubes.**

is made of wax than of lacquer, whereas on the Continent of Europe lacquer is more extensively used.

#### Use of Wax Linings

Choice must be largely governed by the nature of the product, and waxes, no less than lacquers, have their limitations. If the paste or cream with which the tube is filled has an alkaline content, saponification of the waxes may occur. Another deterrent to the use of wax would be the inclusion in the product to be packed in the tube of any ingredient in which the wax is soluble.

#### Sealing Action of Wax

In arriving at the decision as to whether to use wax or lacquer as a lining, there are a number of considerations to be taken into account. One advantage of wax is that when the open end of the tube is brought into contact with heated closing jaws on a combined filling and closing machine, the wax covering the inner portion of that end of the tube fuses and, provided a suitable degree of heat is maintained, this action results in a most effective seal.

The developments in the technique of tube lining, combined with the production of a range of thoroughly tested waxes and lacquers, have brought about a greatly increased use of aluminium in collapsible tube manufacture, for, although tin is now in abundant supply, it costs more than aluminium. Generally speaking a lacquered aluminium tube is half the price of a tin tube.

For the purpose of tube lining lacquers are always subjected to long ageing tests, and most of the collapsible tube manufacturers now have a range of approved lacquers, which have proved satisfactory for use in conjunction with specific products, every product being tested in relation to the proposed lining. A great deal depends upon the nature of the ingredients, *e.g.* a lining that is found suitable for mayonnaise made by one firm may not necessarily be satisfactory for use in conjunction with a similar product made by another. One small quantity of a different ingredient may make all the difference. It is most essential, therefore, that there shall be the closest possible co-operation in this respect between the manufacturer of the product and the tube maker.

#### Effect of Change of Formula

By the same token, any change of formula or any substitution of one ingredient for another may affect the relations of the product

**Icing is extruded from a tube through a pointed nozzle which is closed after use by a white plastic screw-threaded cap.**

to the lining. As one tube maker put it, "a little bit of flavouring can tip the scale."

Some manufacturers of pastes, sauces, or other preparations, for which collapsible tubes would make ideal packs, have asked themselves: "Can a lining material be developed that will be thoroughly reliable for use with my product?" It is conceivable that a simpler and less costly method would be the adaptation of the formula of the product to suit the pack. A slight adjustment, which has no adverse effect upon quality, taste, colour, or consistency, may inhibit chemical reactions.

#### Speciality Food Products

A number of tube-packed products were shown at the Food Fair at Olympia, among which were French mustard and English prepared mustard. "It is because we foresee that in time the value of these products in tubes will be appreciated that we are about to put them on the British market," explained Mr. A. M. Wood, joint managing director of Tyne Brand Products. "We are also setting out to secure export business in the various world markets where tubes of speciality food products are appreciated.

"The use in this country of collapsible tubes for the packaging of such products as mayonnaise, fish pastes, cream cheese, and mustard might very well result in the transformation of the proverbially stodgy British sandwich into an item of refreshment as appetising and attractive as those to be found in many Continental countries, where the sandwiches are made with liberal fillings very acceptable for light luncheons.

"I feel sure that collapsible tubes can vastly increase the popularity of sandwiches, not only in restaurants, but also in the home," he said. "Housewives and hoteliers will discover how easy and convenient they are to use. They provide a far easier and cleaner method than the present one of dipping knives into jars or tipping up the narrow-neck containers with a risk that too much of their contents will fall on to one slice of bread. All that is necessary is to press the tube, and a 'controlled' quantity of its contents is then easily distributed in ribbon fashion on to the sandwich, requiring only a slight touch with a spreading knife to ensure the even thickness of the paste or cream-like substance over the surface of the bread."

#### Long Shelf Life

Tubes as food containers have a further advantage in that there is no air space between the closure and the contents, the product thus being kept in an air-tight condition. By screwing the cap on to the nozzle immediately after use, exposure of contents is eliminated, and the product remains in good condition and in its plastic, easily applied state for a long period. An example of the protection provided by collapsible tubes between one time of use and another is icing. A particular variety of this product, packed in tubes in ready-mixed form, now enjoys a wide sale. It is always ready for use, and retains its plastic state for a long period.

#### Ready-mixed Mustard

As a pack for ready-mixed mustard, the collapsible tube, for snack bars no less than for picnic hampers, is ideal. For the restaurateur and for the housekeeper it should make a welcome addition to the table equipment, obviating the trouble of mixing mustard and washing mustard pots daily, and saving the waste due to the oxidisation of the contents of the mustard pot.

The foregoing constitute merely some examples of the possibilities of the use of collapsible tubes in the food industry. Enterprising manufacturers will no doubt find that an appreciable range of products can be treated in the same way.

## Foodstuffs from the Engineering Angle

In his book* (in the German language) on the technology of foodstuffs, Heiss has attempted (to quote his own words in the introduction) "to give the engineer and physicist a synopsis of their potential functions in the industry and to present the fundamentals of the processing of foodstuffs." The emphasis is thus on engineering and not on chemistry, and the engineering approach is reflected in the headings to the three main sections: fundamental processing methods in the food industries; manufacturing processes involving mainly mechanical methods; and manufacturing processes involving mainly thermal processes in the separation of the gaseous from the liquid phase.

The first section deals in a general way with such operations as size reduction, mixing and kneading, mechanical and thermal methods of separation, and ion exchange, each of the subsections being excellently illustrated by diagrams and graphs. Typical materials in the processing of which the mechanical aspect predominates, are cereal grains, nuts, peas, margarine, chocolate, vegetable oils, starch, and milk. These are treated in the second section. Thermal processing methods such as roasting, evaporation, crystallisation, and melting are considered in the third section, with reference to the production of such commodities as dried eggs, biscuits, jams, ice cream, beet sugar, animal fats, and processed cheese. These three sections are followed by a shorter one on biochemical technology, the scope of which can be conveyed by saying that the products considered include yeast extract, vinegar, pickled cabbage, wine, and cheese.

The subsections for each of the processes or products are followed by references to the authoritative literature. The novel classification of the material has sometimes resulted in allied products being treated in widely separated parts of the book, but the advantages for the type of reader to whom the work is mainly addressed are obvious.—L. L.

* *Lebensmitteltechnologie*. . By Dr. Rudolf Heiss. Pp. 344+viii. Verlag von J. F. Bergmann, Munich. Price DM. 29.70.

# The Menace of Food Poisoning

**In October 1947 a one-day conference on food and drink infections was held in London under the auspices of the Central Council for Health Education. A conference, at which representatives of four hundred and eleven authorities were present, was again held on this subject in August last to review the progress made, and it was disappointing to learn that, despite the resolutions of the 1947 conference and the various measures that authorities had since taken, food poisoning is on the increase.**

IN his message to the Conference, read by the chairman, Sir W. Wilson Jameson, G.B.E., K.C.B., M.D., F.R.C.P., D.P.H., the Minister of Health referred to the work done by Government Departments both before and since the 1947 conference. In addition to publicity afforded the subject, Working Parties had been set up to look into the subject of hygiene in two special branches of the food industry, *viz.* manufactured meat products and the catering industry, and model by-laws issued by the Ministry of Food had been widely adopted. The primary object was scrupulous attention to cleanliness of equipment, clothing, and person at all stages of manufacture and handling of food and drink, and it remained essential to maintain and increase vigilance to this end.

### The Problem Restated

There were now nearly a thousand outbreaks a year of food poisoning, compared with about fifty before the war, said Prof. G. S. Wilson, Director of the Public Health Laboratory Service; this increase might be due partly to better reporting, but most of it was real. Giving a brief outline of the causes of food poisoning, Dr. Wilson said that about 40 per cent. of outbreaks were of the infection type, due to organisms of the Salmonella group; 20 per cent. were of the toxin type, caused mainly by an organism known as *Staphylococcus aureus*; and 40 per cent. were of the non-specific type which appeared to be due to organisms that do not usually produce disease unless they are present in very large numbers.

There were two main reasons why food poisoning was becoming more common—more made-up food was eaten than was the case before the war, and communal feeding was being introduced to an increasing extent. Made-up foods were potentially dangerous because, if they were kept at a favourable atmospheric temperature, bacterial multiplication could occur in them very rapidly. Communal feeding presented dangers because it involved handling of large quantities of food which, if contaminated, would affect large numbers of people.

The one supreme factor in the causation of food poisoning which was regarded as more important than all the rest put together was temperature. Food poisoning was essentially a summer disease, and the incidence of it could almost be predicted from the level of the temperature on the Air Ministry's roof.

The use of fresh food, the avoidance of all sources of contamination by scrupulous attention to hygiene, the keeping of the food in a refrigerator until it was cooked, its thorough cooking and immediate consumption, with rapid cooling and cold storage of leftovers, were recommended as the simplest rules for the prevention of food poisoning.

### Gastro-enteritis in Infancy

Speaking on the relationship of infected food to gastro-enteritis in infancy, Dr. Bernard Schlesinger, O.B.E., M.D., F.R.C.P., said that an increasing number of outbreaks of food poisoning which had been investigated had been found to be due to Salmonella, but despite reports published abroad, he was of opinion that this organism was only very rarely responsible for infantile gastro-enteritis in Great Britain.

Investigations had been made in an endeavour to trace the cause of this disease; some authorities claimed that a virus was responsible, but no conclusive evidence had been produced in favour of this type of infection being a frequent cause. There was little doubt, however, that some bacterial agent was responsible, since the disease was one of the most infectious hazards of infant life, and there were on average 3,000 deaths from it annually in Great Britain. Dr. Schlesinger mentioned the ways in which this disease could be communicated and the precautions that should be taken in preparing infant feeds, and he called for some revolutionary public health measures to reduce this wastage of infant life.

### Conditions in Catering Establishments

The statement made by Prof. Wilson with regard to the causes of food poisoning was borne out by Dr. Betty Hobbs, B.Sc., Ph.D., Dip. Bact., of the Public Health Laboratory Service, who stated that the increase in the setting up of catering establishments showed a remarkable tendency to run parallel with the increase in food poisoning incidents. Probably two of the principal factors in food contamination sufficient to cause illness were the transfer of infection from the food handler, and the storage of infected food under conditions which encouraged the multiplication of organisms.

Mentioning the facilities that should be available for hand washing, Dr. Hobbs pointed out that whatever precautions were taken to free hands from pathogenic organisms, it was impossible to guarantee complete elimination, and it was therefore essential to cut handling to a minimum.

Those concerned were urged to aim at the achievement of a better design of kitchen and equipment,

and the training of all food handlers in the principles of food hygiene.

#### Ignorance of the Food Handler

Summarising the causes of outbreaks of food poisoning, Dr. E. K. Macdonald, O.B.E., chairman of the Central Council for Health Education and Medical Officer of Health for Leicester, said that the vast majority of cases could be put down to the ignorance of the food handler. The local authority was becoming more and more the body responsible for the initiation and follow up of steps that could be taken towards the prevention of the disease, and he considered that such action lay within four main categories, *viz.* educative, exemplary, admonitory, and penal, in order of importance.

He drew attention to Sections 9 to 18 of the Food and Drugs Act. These Sections, together with various regulations, dealing with milk and meat for example, and especially the new by-laws on clean food handling, which most, if not all, local authorities had recently adopted, gave all the powers required, but he believed that most authorities did not, as yet, make sufficient use of these powers.

#### Action by Local Authorities

On the question of health education, the local health authority obtained its powers under Section 28 of the National Health Service Act, but for other authorities, there was still the power conferred on them by Section 179 of the Public Health Act, 1936. The Central Council existed primarily to help the local authority of any size in this work.

Action that had been taken by Leicester in this direction included a particular drive to improve the cleanliness of ice cream, manufactured and sold in the city. A very high standard had been set as to the condition of the premises from which ice cream was sold; and as to its manufacture, a specially trained sanitary inspector kept an almost daily watch on the premises and methods used. In conjunction with the Public Health Laboratory Service, samples of the product at all stages of manufacture had been submitted for analysis and the results discussed with the workpeople concerned. As a result, the bacterial standard of ice cream sold had improved greatly, and it was now rare for them to get a grade 2 sample, let alone grades 3 or 4.

Another step had been the appointment of an officer with domestic science training, whose job it was to visit canteens and similar establishments in the city and try to educate the food handlers on how to improve their methods. This officer had, of course, no power of entry, but he felt it might be worth while to designate her as an authorised officer under Section 100 of the Food and Drugs Act.

With regard to exemplary action, Dr. Macdonald held that the local authority should act as an example, not only in the way it carried out its duty to the public, but also in the standard it set in all its dealings with employees or business connexions.

There was, he concluded, nothing spectacular in what the local authority could do; the problem and the action to be taken were both well known. It was only a question of perseverance and steadily pegging away at education of the food handlers.

#### Gaining the Trade's Co-operation

Mr. H. A. Perry, M.R.San.I., M.S.I.A., agreed with Dr. Macdonald that most authorities did not use the powers they had been given under the Food and Drugs Act to the fullest advantage, but he felt that this was largely due not only to the difficulties of the war and post-war years, but also to the difficulty of applying the loosely worded provisions of this Act—particularly Section 13. The familiar phrase "suitable and sufficient," "as may be reasonably necessary," etc., occurred all too frequently to enforce even what today are regarded as common sense requirements. He did not wish to criticise too strongly the present statutory powers, but merely to draw attention to their limitations, and to stress the point that such powers must of necessity be regarded as the means for achieving *minimum* standards only. Unwilling compliance with such requirements could never achieve the same results as wholehearted co-operation.

#### Need for Separate Standards

There seemed to be a need for separate standards to be laid down for each of the main food trades. If each trade had its own statutory code, it would be possible to give local authorities far greater guidance in securing satisfactory standards which would lead to greater uniformity, but statutory requirements alone were not the complete answer to the problem. The interest of the food trader and other persons engaged in the preparation, handling, and distribution of foodstuffs must be obtained if the safety of food supplies were to be ensured.

It was true that certain foods were more prone to infection than others, but there was no reason why food handlers should not be taught that the "clean" way was the only "safe" way in regard to all types of food. Although posters, pamphlets, and public lectures had proved to be satisfactory methods of putting over these important points, he thought that a new method of approach was necessary in the present state of affairs.

#### Guildford's Campaign

In the district of Guildford they had tried to explain, by means of informal talks to groups of food handlers, how infection was spread, the types of infection, which foods were the most susceptible, and what could be done to prevent trouble arising. They had also introduced the subject to senior school children and to students attending courses concerned with food handling at the local technical college. Visits by groups of food workers to different types of food factories where the standard of hygiene was high had also been organised.

These activities and others designed to assist in the education of the food handler had been greatly

simplified by the setting up of the Guildford Hygienic Food Traders' Guild, of which Mr. Perry was honorary secretary. He did not think it necessary to employ separate officers to deal with hygiene in premises. Medical and sanitary officers already possessed the necessary powers of entry and they had sufficient knowledge and experience at their disposal to cope with any problems relating to hygiene. He recommended, however, that local authorities should be given the power to appoint additional inspectors to cope with this work at the rate of one inspector per 40,000 head of population.

Giving a brief outline of the constitution of the Guild, Mr. Perry said that their aim was "a specially trained assistant in food hygiene in every food establishment in the Borough," and a course of four lectures, followed by a short examination with a certificate of competency granted to each successful candidate, had been arranged for food handlers.

He was convinced that the advantages of this kind of organisation fully merited the additional work involved.

#### Practical Problems

The problems which faced the housewife in her attempts to achieve a desirable standard of food hygiene were presented by Mrs. J. R. Robins, Chief Home Service Adviser, North Thames Gas Board. Stressing the importance of simplification of instructions, she begged the authorities to be practical rather than theoretical in their efforts to educate people with regard to sterilisation, storage of food, and other factors in food hygiene.

#### Discussion

The various points brought up during the discussions which followed the reading of the papers ranged from cracked cups to the question of duck egg poisoning, and, with a few exceptions, constituted a depressing repetition of the pleas and complaints heard at the 1947 conference.

The railways once again came in for the usual criticism of their catering facilities, the compulsory wrapping of bread was again advocated, and complaints as to the nuisance of dogs in food establishments were promptly met with similar complaints about cats.

No members of the catering trade came forward to defend their own industry, but they had a champion in one speaker, who asked the general public to preserve their sense of proportion as to the extent of the problem of food poisoning. He was convinced that the trade appreciated this problem, and he reminded the conference that the bad conditions mentioned came to notice purely because they were not typical of those in most of the country's catering establishments.

#### Catering at Shows

Several speakers emphasised the dangers of food poisoning in the catering for large numbers of people at agricultural and similar shows where facilities were not as good as they should be, and one speaker felt it should be obligatory for those concerned to deposit plans of their proposed arrangements with the local sanitary authority. The authorities were also asked to pay greater attention to the conditions which existed in many factory canteens.

A request not heard previously was with regard to detergents. The trade were inundated with literature about different detergents, and were in need of authoritative recommendations as to the best to use for a particular purpose.

The principal speakers at the conference were given an opportunity to reply to those taking part in the discussion.

In so doing, Dr. Wilson said that it was fairly evident from the discussion that there was some confusion between the essential and the non-essential. There was a need to distinguish between clean food and safe food. Cleanliness was most desirable, yet it did not guarantee safe food, and he reiterated the point he made earlier that temperature could make food unsafe despite the presence of all accessories to cleanliness.

#### Summary

Summarising the proceedings, Dr. Robert Sutherland, medical adviser and secretary of the Central Council, said there were three practical measures which could be taken to combat the problem which confronted them. Firstly, they could apply existing legislation with greater stringency and urgency than at present. Secondly, the Ministry of Food had produced revised model by-laws, and all local authorities might consider whether they should not adopt these. Lastly, a good case had been made out for discussing with the trade whether or not it would be advisable to establish codes of practice and some form of food guild.

There was, however, only one person who could determine whether the standard set would be efficacious, and that was the food handler. He would play his part only if he really understood the reasons for the recommendations made. It was therefore necessary to direct an educational programme not only at the food handler and those in a supervisory category, but also at the general public, since both management and labour would be more co-operative if public opinion demanded a high standard of hygiene.

It was the responsibility of local authorities to take the initiative since they were in a position to marshal and gain the support of all food handlers in their areas, and it was hoped that those present would take up the challenge.

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## BOOKS RECEIVED

***Orders for any of the books listed below or reviewed in this issue may be placed with the Books Department, FOOD MANUFACTURE, 17, Stratford Place, London, W.1. It is regretted that under present conditions it is not always possible to supply books by return of post.***

*Implementation of Full Employment Policies.* Report No. 1. U.N. Publications Sales No. 1950, II, A.1. Pp. 52+v. H.M.S.O. Price 3s.

# Manufacture of Table Desserts

THE basis of the popular table creams or dessert powders* on the German market may be starch, gelatin, and pectin, more rarely agar-agar. Sugar is generally added by the consumer, but is present in some proprietary mixtures, while other products contain synthetic sweetening agents.

Starch predominates as the basis. Since the fundamental requirement is a powder that will readily form a gel when mixed with water or milk, some degree of degradation of the natural starch is called for. The production of such cold-swelling starches is the subject of a number of British and German patents. For example, according to D.R.P. 728,982 (published 1942) starch is subjected to mild oxidation in aqueous suspension with the aid of hydrogen peroxide. The proportions specified were 100 kg. potato starch suspended in the same weight of water and 0·5 kg. hydrogen peroxide (3 per cent. solution), the suspension being dried on hot rolls. The dry film was finally powdered.

### Methods of Manufacture

According to B.P. 513,464 (1939) the heat treatment is advantageously carried out in presence of malt extract. Thus, a slurry was first prepared from potato, tapioca, or maize starch, and this was mixed with 0·5 per cent. of highly diastatic malt extract and 10-30 per cent. of dextrose or maltose. After standing for twenty-four to forty-eight hours at temperatures up to 60° C., flavours and colouring matter were added and the mass dried on hot rolls. The powdered product forms a gel when stirred with cold water or milk.

A simpler method of degradation is described in B.P. 515,351 (1939), according to which a paste prepared from rice, maize, or wheat is heated to 73°-88° C. and the resultant mass blended with cocoa, fruit juices, etc., and homogenised before being finally spray dried. Preparation for the table, again, merely involves mixing with cold water, with the addition, if desired, of sugar and milk.

Cereal meals can be treated on similar lines, as exemplified in F.P. 831,061 (1937), which specifies the preparation of an aqueous paste from rye or oatmeal and its passage between hot plates at 160°-180° C.

During the last war, the German authorities were keenly alive to the ease of preparation of dessert dishes on the basis of powders of the foregoing types, and the entire output was reserved for the armed forces.

### Spray-dried Milk Powder

An entirely different procedure for manufacture of a "cold" dessert powder is a patented process which does not require starch and is based on the use of spray-dried milk powder. Preparation for the table involves coagulation of the proteins by means of rennet. The latter is put up in a smaller package enclosed with the larger one containing the dessert powder proper and which comprises a mixture of the processed milk powder, flavouring, colouring matter, and sugar; other ingredients may include cocoa or chocolate powder, dried fruits, and nuts. For serving, the rennet and the dessert powder are separately stirred with the requisite amounts of lukewarm water before mixing. After a few minutes the proteins coagulate and the pudding is ready. Alternatively it can be used as a whipped filling for tarts and meringues. This type of cold dessert is unique in providing the total protein complex and mineral content of milk in a concentration not readily attainable with any other food preparation.

### Use of Maize Starch

For a long time the German dessert powder industry was dominated by maize starch, only slight use being made of wheat and rice starches. Gels prepared from maize starch can be readily detached from the moulds without disintegrating and are extremely smooth on the tongue. Potato starch is particularly disappointing in these respects, but in view of its economic attractiveness strenuous efforts have been made by the Research Institute for Starch Manufacture and by the starch industry to overcome these defects, and the method of approach to the problem is illustrated by the patent literature.

According to one patent, potato starch is treated with oxidising agents in alkaline or ammoniacal solution until a sample cooked with water yields a gel which is firm to cutting. The starch may be stirred with the oxidising agent for thirty to sixty minutes at 40°-45° C. (D.R.P. 689,902 of 1940).

### Treatment of Potato Starch

In another process (Ital. P. 373,681) the starch is subjected to the action of an alkaline bleaching solution at a temperature below that at which it forms a paste (*i.e.* below 60° C.). For example, an electrolytic bleach solution containing sodium carbonate is added to a suspension of the starch in water at 35° C. The mixture is stirred until the chlorine reaction disappears, and then neutralised with hydrochloric acid to a *p*H of 5-7 before the product is centrifuged and dried.

Potato starch with a maximum water content of 50 per cent. is treated with nascent oxygen at a temperature below 60° C. (D.R.P. 738,909 of 1943).

Notwithstanding the resistance of a large section of the dessert powder industry, which preferred the old-established maize starch, potato starch gained a footing in this field, especially during the last war, at first in admixture with maize starch and subsequently as the sole gelling base in the powder. The resistance was occasioned not merely by the inferior physical characteristics of the gel, but also by the poor absorption of flavours by the potato product.

(From Chapter 2 of *Back- und Puddingpulver*, by Dr. K. Schiller. Wissenschaftliche Verlagsgesellschaft, Stuttgart, 1950.)

* "Dessert powder" is the closest English equivalent of the German *Puddingpulver*.

# News from the Industry

## FORTHCOMING EVENTS

### Nutrition Society

The following meetings have been arranged for the session 1950-51 of the Scottish Group of the Nutrition Society:

1950. October 14. Conference on "Growth" at the Usher Institute, Edinburgh.

1951. February 10. The presentation of original contributions at the Rowett Research Institute, Bucksburn, Aberdeenshire; April 21. Conference at the Hannah Dairy Research Institute, Kirkhill, Ayr. Subject to be announced later.

### Dairy Technology Lectures

Designed to provide up-to-date information for persons holding managerial or executive posts in the dairy industry, for dairy laboratory workers, food chemists, and others of professional standing interested in milk, two series of lectures on special aspects of dairy technology will be held at the Chelsea Polytechnic, Manresa Road, London, S.W.3, during the autumn and spring terms. All the lectures will be given in the chemistry lecture theatre at 7.15 p.m., and opportunity will be given for questions and discussion.

Details are as follows:

*First Series*, 1950

Nov. 14: "Dairy Farming Economics," by W. L. Keene (county delegate of the National Farmers' Union, special member of the Milk Marketing Board). *Chairman:* H. F. Freeth (President, National and Metropolitan Dairymen's Associations).

Nov. 21: "Processing Dairy Economics," by A. W. Reid, B.Sc. (Royal Arsenal Co-operative Society). *Chairman:* James Clarke (Hornby and Clarke).

Nov. 28: "Economics of Retail Dairying," by A. W. Reid, B.Sc. (Royal Arsenal Co-operative Society). *Chairman:* I. A. Howard (H. A. Job, Ltd.).

Dec. 5: "Interesting Legal Aspects," by Patrick O'Neill, M.A., B.C.L. (secretary, National Dairymen's Association). *Chairman:* E. Freeth (Express Dairy Co.).

*Second Series*, 1951

Feb. 13: "Materials of Construction in Dairies," by F. C. Harper, B.Sc., Ph.D. (The Building Research Station, Garston). *Chairman:* Graham Enock (The Graham-Enock Manufacturing Co.).

Feb. 20: "Corrosion of Metals in Dairying," by G. H. Botham, B.Sc., F.R.I.C. (A. P. V. Co.). *Chairman:* J. Milligan, A.M.I.Mech.E. (York Shipley).

Feb. 27: "Instruments in Dairies," by L. S. Yoxall (Foxboro-Yoxall). *Chairman:* J. Matthews, B.Sc., A.R.C.S. (A.P.V. Co.).

Mar. 6: Symposium "Recent Advances in Dairy Science and Technology." E. L. Crossley, B.Sc., Professor of Dairying, Reading University; J. R. Cuttell, A.M.I.Mech.E. (A.P.V. Co.); T. D. Potter, N.D.D. (Express Dairy Co.); A. L. Provan, Ph.D., A.R.I.C. (Milk Marketing Board); J. R. Rowling, N.D.D. (J. E. Rowling). *Chairman*: E. Capstick, M.C., M.Sc. (United Dairies, London).

### Sales Management Exams.

The Education Committee of the Incorporated Sales Managers' Association have arranged for qualifying and final examinations in "Sales Management" to be held on December 7, 8, and 9, 1950.

It should be noted that, for this examination, centres will be opened in London, Glasgow, and Manchester only and intending candidates should be advised accordingly.

Entry forms are available from the Secretary, I.S.M.A., 23 Bedford Square, London, W.C.1, and must be returned by October 30, 1950.

### "Any Questions" on Packaging

The specialist team on packaging, headed by Mr. G. M. Ashwell, packages adviser to I.C.I., who recently went to America under the auspices of the Anglo-American Council on Productivity, have been booked by the Institute of Packaging to answer "Any Questions" and to discuss their report at three open meetings of the Institute in October. Admission to the meetings is not restricted to members of the Institute but can be gained by any executive with a *bona fide* interest in packaging on production of a trade card. The three meetings will be held as follows:

Oct. 5. Southern Area open meeting at 6 p.m. at the Waldorf Hotel, Aldwych, W.C.2.

Oct. 11. Northern Area open meeting at 2.30 p.m. at the Houldsworth Hall, Deansgate, Manchester.

Oct. 16. Midland Area open meeting at 6 p.m. at the Imperial Hotel, Birmingham.

The following meetings and events have also been arranged for the first half of the 1950-51 autumn and winter session of the Institute:

Oct. 11. Third annual dinner of the Northern Area, Institute of Packaging, at the Grand Hotel, Manchester.

Oct. 28. Northern Area party to visit works of Thomas Hedley and Co., Trafford Park, Manchester.

Oct. 23-27. Five-day lecture course on packaging for junior executives in the industry.

Nov. 2. "The Packaging Machinery Industry," by Mr. E. D. S. Baker. (Southern Area meeting, at the Waldorf Hotel.)

Nov. 13. "Collapsible Tubes," by Mr. J. G. Wilson (Universal Metal Products). (Northern Area meeting, at the Grand Hotel, Manchester.)

Nov. 16. "Research Today," by Dr. G. L. Riddell (PATRA). (Midland Area meeting, at the Imperial Hotel, Birmingham.)

Nov. 20. Northern Area party to visit Liverpool works of Tate and Lyle.

Dec. 7. (Southern Area meeting—provisional.) Paper by a representative of a shipping company.

Dec. 11. "Corrosion Prevention," by Dr. D. Clayton (I.C.I.). (Northern Area meeting, at the Grand Hotel, Manchester.)

Dec. 18. Midland Area Xmas party, dinner-dance.

Jan. 30-Feb. 9. Second annual packaging exhibition and conference. (Feb. 6: Fifth annual dinner of the Institute.)

### Institution of Works Managers

Meetings of the Institution of Works Managers during October 1950 will be as follows:

Oct. 3. *Leicester Branch.* "Factory Discipline." J. Ayres (Brush Electrical Eng Co.). 7 p.m. at the Bell Hotel.

Oct. 3. *Sheffield Branch.* Annual general meeting. "The psychology of works management." W. Higgs (Higgs Motors). 7.30 p.m. at the Grand Hotel.

Oct. 4. *Merseyside Branch.* Visit to farms of J. Bibby and Sons at 2 p.m.

Oct. 5. *Bristol Branch.* "Managing a small factory." A. H. Huckle (A. E. Walsh and Partners). 7.15 p.m. at the Royal Hotel.

Oct. 6. *Notts. and Derby Branch.* "Industrial management and its human and social implications." A. P. Young, O.B.E. 7.30 p.m. at the Mechanics Institute, Nottingham.

Oct. 10. *Merseyside Branch.* "The Factories Act, 1948." C. P. Gourley, H.M. Superintending Inspector of Factories. 6.30 p.m. at the Adelphi Hotel.

Oct. 10. *West Midland Branch.* "Glass Manufacture" (illustrated). Dr. R. E. Bastick (Chance Bros.). 7 p.m. at the Grand Hotel.

Oct. 12. *Wembley Sub-branch.* "Some aspects of works and sales co-operation." J. G. Christopher (G.E.C.). 12.30 p.m. at "The Plough," Kenton Road, Kenton.

Oct. 12. *Tees-side Branch.* "Management of a small factory." D. G. Petrie (Star Paper Mills). 7.30 p.m. at the Vane Arms Hotel, Stockton.

Oct. 13. *Manchester Branch.* "The development of industry in the Greater Manchester Area and the difficulties of present-day developments under the Town and Country Planning Act and the Distribution of Industry Act." Col. T. H. G. Stevens (Trafford Park Estates). 6.30 p.m. at the Grand Hotel.

Oct. 16. *London Branch.* Annual general meeting and showing of film strip on motion study and statistical quality control. 6.45 p.m. at the Waldorf Hotel.

Oct. 16. *Northampton Group.* "Managing a small factory." D. G. Petrie (Star Paper Mills). 7 p.m. at the Carnegie Hall.

Oct. 19. *West Yorkshire Branch.* "Some aspects of industrial psychology." J. Munro Fraser (National Institute of Industrial Psychology). (Jointly with members of the N.I.I.P.) 6 p.m. at the Great Northern Hotel, Leeds.

Oct. 23. *Glasgow Branch.* "Practical applications of mechanical handling." (Jointly with Institution of Production Engineers.) 7.15 p.m. at the Institution of Engineers and Shipbuilders.

Oct. 25. National luncheon meeting and annual general meeting at the Waldorf Hotel, London, W.C.2, 12.30 p.m. for 1 p.m. Principal guest: The Minister of Supply.

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**Royal Sanitary Institute**

The following meetings of the Royal Sanitary Institute have been arranged:

*Burnley Sessional Meeting*, October 6, at 10.15 a.m. in the Lecture Hall, Central Library, Grimshaw Street. Papers on "Some Notes Relating to Ice Cream," by F. Shuttleworth, Chief Sanitary Inspector, Burnley, and "Some Aspects of the Supervision of Food Supplies," by J. King Shaw, M.R.C.V.S., Veterinary Officer, Burnley. The afternoon will be devoted to visits to firms, etc.

*London Sessional Meeting*, October 11, at 2.30 p.m. at the Institute. Symposium on "The Care of the Aged Healthy, the Aged Infirm, and the Aged who are Chronically Sick," by (*a*) H. L. Glyn Hughes, C.B.E., D.S.O., M.C., M.R.C.S., L.R.C.P., Senior Administrative Medical Officer, South-East Metropolitan Regional Hospital Board; (*b*) G. S. Wigley, M.R.C.S., L.R.C.P., D.P.H., Deputy Medical Officer of Health, Middlesex C.C.; (*c*) Sir Edward Bligh, Chief Officer of the Welfare Department, London C.C.; and (*d*) F. R. O'Shiel, L.R.C.P. and L.M., L.R.C.S.I. and L.M., D.P.H., Medical Officer of Health, Stepney. *Chairman:* Sir W. Allen Daley, M.D., F.R.C.P., D.P.H. (Vice-President).

*Paignton Sessional Meeting*, October 19, at 10 a.m. in the Council Chamber, Oldway Mansion. Papers on "Detection of Enteric Carriers in Towns by Means of Sewage Examination," by B. Moore, M.B., B.Ch., Director, Public Health Laboratory, Exeter; and "A Food Hygiene Scheme in a Healthy Resort," by G. J. Loveless, M.S.I.A., Chief Sanitary Inspector, Torquay. Visits to works, etc., will be made in the afternoon.

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**Scientific Film Congress**

The Fourth Congress of the International Scientific Film Association is to be held in Florence from October 14 to 22, 1950.

As in the case of the three previous Congresses, there will be a Festival of Scientific Films and a special committee of the British Scientific Film Association has been formed to recommend films for submission.

There will also be specialist group meetings of the Medical, Research, and Industrial Film Committees, as well as the business meetings of the general assembly of the Congress.

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**Laboratory Technicians' Exams.**

In view of the establishment of the Intermediate Certificate for Laboratory Technicians by the City and Guilds of London Institute, the Institute of Physics will not award their Certificate in Laboratory Arts after 1951.

The City and Guilds of London Institute has agreed that holders of the Institute of Physics Certificate shall be eligible to enter the course for the Advanced Laboratory Technicians' Certificate, which is to be established shortly, on the same terms as those who have passed examinations for the new Intermediate Certificate. Students who have already begun courses for the Institute of Physics Certificate will be able to complete these by 1951, after which the Institute of Physics will no longer examine in laboratory arts.

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**Biscuit Maker's Jubilee**

Mr. John E. Macfarlane, chairman of the biscuit manufacturers Macfarlane, Lang and Company, recently received a presentation from the directors and employees to mark the completion of 50 years' service with the company.

Mr. Macfarlane joined the firm in 1900 and was appointed a director in 1912. He became chairman of directors in 1944 on the death of his father, Sir James Macfarlane, D.L., LL.D., and is now assisted in the management of the company by a brother, Mr. Robert F. Macfarlane, and a cousin, Mr. William W. Macfarlane.

The business was started in 1817 as a baker's shop in Gallowgate, Glasgow, by Mr. James Lang. Mr. Lang's nephew, Mr. John Macfarlane, took over control in 1841, following his uncle's death, and for 109 years the management of the company has been in the hands of the Macfarlane family.

The firm now have factories at Tollcross, Glasgow, and at Osterley, Middlesex.

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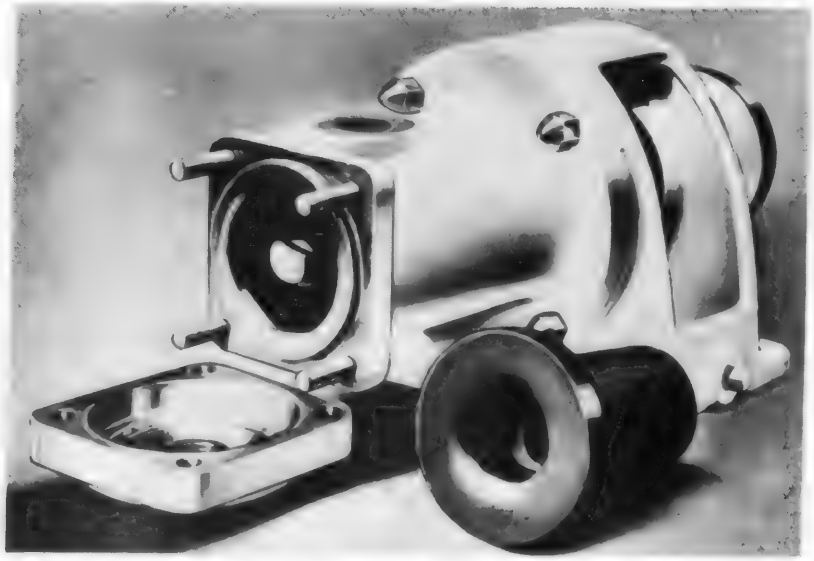
**Put Another Spoonful In!**

Christened the "Nickelodian," a specialised packing machine which packs tea in small rice paper packets has been purchased by Lipton's from the Pneumatic Scale Corporation of North Quincey, Mass., under the Marshall aid scheme.

The machine first forms the packet of rice paper, fills it with sufficient tea for one cup, seals it by heat pressure, and staples a string and tab on it at a rate of 180 packets per minute. The bags are then packed by hand into boxes containing 100 packets.

The string and tab enable the suspension of the packet in a cup of boiling water, thus producing a tea infusion without dregs. This method of making tea is popular on the Continent and in America, and there has been a heavy export demand for this type of packing.



A low-capacity pump of 60 gallons per hour dismantled for cleaning.

### Pumps for Brewers

Pulped fruits, yeast products, and viscous pectin are some of the constituents used in the brewing trade which are now pumped through each stage of processing. The handling of products liable to bacteriological attack calls for a pump which can easily be dismantled for cleaning, and in this field Mono Pumps have closely followed the brewing and soft drink industries' requirements. Among their range of stainless steel and other pumps developed for brewers is their new Kwikleen pump, which can be dismantled rapidly for the cleaning of four essential parts which may be in contact with the fluid concerned. It will handle free flowing or viscous fluids and a prototype handling pectin is to be demonstrated at the Brewers' Exhibition from October 2 to 6.

A low capacity pump of 60 g.p.h., a stainless steel pump for handling fruit pulps, and a range of stainless steel pumps which are widely used in the brewing, wine, spirit, and soft drinks industries will also be displayed together with industrial pumps for handling brewing liquors and viscous waste sludges.

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### Standard for Rubber Belting

A revision of the War Emergency issue of British Standard 351, friction surface rubber transmission belting, has been issued.

The document provides four fabric weights for use in the construction of belting, and gives full constructional details and test requirements.

### Kenya Lecture Tour

Among the lectures to be delivered by Sir John Russell, F.R.S., during his two months' tour of Kenya arranged by the British Council will be one on the work of the Rothamsted Experimental Station, of which he was the Director from 1912 until his retirement in 1943. In others he will deal with advances in methods of soil improvement, a subject on which he is an authority, having been Director of the Imperial Bureau of Soil Science from 1928 to 1943 and, until recently, President of the International Society of Soil Science, the problems of world food supplies, and modern advances in agricultural science.

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### U.S. Food Distribution Studied

The four British food experts who recently joined 44 other specialists from eleven Marshall Plan nations on a trip to the United States to observe American methods of moving perishable foodstuffs from the farm to the consumer were J. W. Bannard (Unilever); F. N. Beams (York Shipley); J. F. Hearne (Scientific Advisers' Division, Ministry of Food); and J. B. Osler (Express Motor and Body Works).

The eight-week trip was sponsored by the Economic Co-operation (Marshall Plan) Administration, the Organisation for European Economic Co-operation, and individual Marshall Plan countries as a means of providing European food experts with technical information which might be used to reduce present-day waste of perishable foods.

### Obituary

**Mr. G. H. H. Lawrence,** general sales manager of the refrigeration division, Pressed Steel Company, on August 5, at the age of 42.

Mr. Lawrence joined the company as manager of the Manchester branch in 1942, transferring thence to the head office at Cowley as service manager, and in 1948 he was appointed general sales manager.

He took an active part in the many problems affecting the refrigeration industry, which, by his passing, has lost one of its most forceful and energetic leaders.

*

**Mr. Robert Wilson,** head of Robert Wilson and Sons (Barrhead), at the age of 88.

Mr. Wilson was a pioneer of the Scottish food trade, and responsible for the expansion of the firm of Newforge, leading exponents of quick freezing in Ireland. He was recognised as an expert on pig-product processing, and was also a farmer of considerable ability.

*

**Mr. F. C. Williams,** manager of the Cardiff branch office of G. and J. Weir, on August 19, at the age of 63.

Mr. Williams commenced his apprenticeship at Cathcart in November, 1902; he had much experience of marine fitting and repair work on the Clyde, and of land installations in the Manchester area, before he represented Weir's in South Wales and the West of England where he was well known in engineering circles.

*

**Mr. E. W. Wallbridge** on August 22, after several months' illness.

A dealer in second-hand machinery for food manufacturers, Mr. Wallbridge had been well known throughout the trade for the past forty years. The business will continue under the management of his son, Mr. S. B. Wallbridge.

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### Scottish Seaweed Company

A new Scottish company has been formed to undertake the harvesting of seaweed or other vegetation and the processing of the weed for making various products. This development follows closely on the launching of a large processing plant in the north-east of Scotland and marks the growing interest in seaweed as a raw material for industrial exploitation.

## New Creamery Company Formed

At a recent meeting at Unilever House, the formation of Craigmillar Creamery Co. and British Creameries into one marketing company to be called Craigmillar and British Creameries, with effect from August 21, was announced by Mr. Clive Van den Bergh, chairman of the newly-formed company.

Mr. Van den Bergh also announced the establishment of the CBC Service Bakery, replacing the Unilever Bakery Service which formerly provided an advisory service on behalf of both companies.

All representatives of the two companies will remain as members of the new company's sales staff, and the new Service Bakery will retain its former representatives, bakery advisers, demonstrators, and technicians.

The head office of the new company will be at Sussex House, Queen Street, London, E.C.4, and there will be a northern sales office at 28, North Bridge, Edinburgh. In addition, a new production unit for bakery fats has been established at the company's Bromborough factory.

It was also revealed at the meeting that a new product—Hyvo—would be added to the pre-war range of brands. It will be of the modern emulsifier type prepared specially to make the sweet type of cake often known as "high-ratio" cake. All other major brands of the previous companies would also be marketed.

In conclusion Mr. Van den Bergh expressed, on behalf of the various managers of the companies, very sincere appreciation of the friendliness and co-operation always received from the trade press.

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## Electric Factory Sweeper

The demand for a fumeless factory sweeper to operate in food factories and similar premises has been met by a new universal battery hand-controlled sweeper introduced by Lewin Road Sweepers.

With a sweeping width of 8 ft. 8 in., the machine, which is powered by a ½ h.p. 24 volt electric motor supplied by traction batteries of ample capacity, will operate wherever an even surface exists and will sweep and collect any kind of refuse. A water sprinkler is provided to keep down dust. The sweeper is simple to control and requires only one operator.

**Mr. Clive Van den Bergh (centre), chairman of the newly formed Craigmillar and British Creameries, gives details of the new company. Reading from left to right, the other directors are Mr. J. Y. Arnott, Mr. J. Price, Mr. H. Graise, and Mr. S. Mackenzie.**

## Chromatography in Industry

In industries dealing with complex natural products, chemists are frequently called upon to examine materials for which no adequate analytical methods are available. Chromatography is a valuable tool for concentrating, isolating, and identifying substances of this nature and a brief outline of its application in industrial research is given in a recent bulletin from Sondes Place Research Institute.

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## English Toffee Containers

Depicting well-known English scenes, natural colour photographs by Hennell of Metal Box are being reproduced on the lids of containers for Edward Sharp and Sons.

The success of the first box—"Bodiam Castle"—as an export container for the company's Super Kreem toffee has been such that the series has been continued and now includes "Grigg Farm" and "Canterbury."

Small leaflets are placed inside each tin after filling. These have created further interest in the colour photographs on the lid and serve to relate the pictures to the contents of the package.

## Self-regulating Alternators

An exclusive licence to manufacture and sell the self-regulating alternators which are described by the registered trade mark "Magnicon" has been granted to Crompton Parkinson by The Macfarlane Engineering Co.

These machines are fully patented and have several unique properties, notably inherent voltage regulation of plus or minus 2½ per cent., or with a special design plus or minus 1 per cent. Automatic voltage regulators are not necessary.

At present these alternators are available in the following range of sizes:

10 kVA-150 kVA at 1,500 r.p.m.
10 kVA-130 kVA at 1,000 r.p.m.
20 kVA-100 kVA at 730 r.p.m.

# Developments in Canning Machinery

## PEELING BY ELECTRIC FURNACE

**The Thermo-Peeler installed at Pickerings Produce Canners factory.**

Canners from many parts of England recently visited the Manchester district to witness full-scale demonstrations of a modern Thermo-Peeler designed for the operation of a new peeling process, and to see other modern machines for the food industry in course of manufacture and on test.

The visit was arranged by Mather and Platt in conjunction with Pickerings Produce Canners, at whose factory in Stockport the Universal Thermo-Peeler has just completed its second season's work on the plum crop.

In the first instance, the machine peeled Golden and Victoria plums. Following a preliminary inspection, the plums passed on a woven wire conveyor belt through the Thermo-Peeler where they were subjected for a brief period to intense heat at a temperature approaching 1,000° C. On leaving the furnace the plums were immediately cooled by a water spray and transferred by a bucket elevator to a horizontal rotary washer in which loose and charred skin was removed. The plums then passed on a conveyor belt for final trimming and inspection before being canned in the usual manner.

The machine was afterwards demonstrated on a variety of other products including apples, pears, peaches, tomatoes, and onions, the only adjustment required being the changing of the speed of the conveyor belt carrying these products through the heat zone.

Two methods of handling the fruit after treatment in the peeler were demonstrated. On the main production line the skins were removed by water as the plums passed through a horizontal rotating type drum. Skins of harder fruits were satisfactorily removed by a standard gooseberry snibber of the abrasive type.

During the winter months, Pickerings used the furnace experimentally for carrots, potatoes, and other root crops, and, in the spring season, a substantial quantity of peeled rhubarb was packed.

At the conclusion of the demonstration, the visitors proceeded to the Radcliffe works of Mather and Platt to inspect the facilities for producing the firm's range of canning machinery.

One of the most interesting units demonstrated was the super pulper, shown in operation on tomatoes, apples, and potatoes. Although the machine has not yet been proved under factory conditions, it is estimated that it will have an output of the order of 5 tons per hour, depending on the product being handled.

Another development which attracted attention was a centrifugal pump, which can pump peas against varying heads to a maximum of about 80 feet. A conservative estimate of the output of this pump was stated to be 3 tons per hour. In the line demonstrated, the pipes were conveyed through Pyrex tubes so that visitors were able to see what happened to peas in transit.

Two other machines of interest were the Stero washer, in which the peas are elevated vertically and opposite to the flow of water used for the washing process, and an apple peeler and corer, which works on the principles of the Mather and Platt mechanical peeler, but includes a number of new features.

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### Plastics Keep Food Cleaner

Thirty specially designed display cases, fabricated throughout in Formica, and ranging from giant self-service cases, 36 ft. by 5 ft., to a wide variety of smaller display units, demonstrated at the recent British Food Fair the important part being played by laminated plastics in the Cleaner Food Campaign.

Designed with a special view to cleanliness and durability, each showcase has a framework of welded steel and the surfacing will not stain or scratch, and can be kept scrupulously clean with the minimum of effort.

A laminated plastic made by Thomas De La Rue and Co., Formica has the added advantage of being non-absorbent, and is therefore particularly useful in preventing contamination where margarine, cheese, bacon, and other fatty foods are concerned.

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### Sixty Twists Per Minute

Requiring attention only for reloading with paper and salt, the Twistrapper, a new high-speed salt packer, will produce over 25,000 screws in a normal day's run.

The double twist with the overlocked ends is formed by four stainless steel revolving fingers, which draw the filled paper through a pair of rubber-faced jaws. The specially treated wax paper does not untwist, and the screws will stand any amount of handling without leakage. The rolls of paper contain enough for 12,000 screws, and the stainless steel salt hopper has a similar capacity.

As the screws are discharged from the bottom of the machine it can be bolted to an ordinary table above a receptacle, but stands are supplied to suit requirements.

Manufactured by Tearne's Automatic Devices, the machine is powered by a built-on ¼ h.p. motor which can be wound to suit any voltage. A remote control switch can be fitted to synchronise with a crisp weighing machine.

### Persian Market Information

Notes on the market for certain beverages and speciality food products, furnished by the Counsellor (Commercial) at the British Embassy, Tehran, have been issued by the Commercial Relations and Exports Department of the Board of Trade.

Commodities covered by the notes include tea, coffee, and cocoa; pepper and spices; groats of barley and pearled or hulled barley; powdered, preserved, and condensed milk and cream; and glucose, lactose, malt extracts, and similar products for children.

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### Institute of Directors

The following directors of firms in the food industry have recently been elected Fellows of the Institute of Directors:

G. W. Scott, O.B.E., The United Molasses Co.
Sir Basil E. Mayhew, K.B.E., J. and J. Colman.
R. P. J. Richards, F.I.A.C., British Milk Carton Co.
A. R. O. Slater, F.C.A., Nuthalls (Caterers).
W. H. White, Quaker Oats.
Rupert E. Carr, Peek Frean and Co.
R. N. Carr, M.C., J.P., Carr and Co.

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### Appointments

Mr. Robert Messulam has been appointed sales promotion manager, the position embodying that of advertising manager, by Marco Refrigerators.

Prior to the war, Mr. Messulam had wide experience in public relations work; after war service, he joined the editorial staff of Kemsley newspapers, later being appointed news editor to the Ministry of Information.

*

Mr. L. D. Gammans, M.P., has joined the board of Procea Products.

*

Colonel Arthur Jerrett, President of the Traders' Road Transport Association, organisation for "C" licence operators, has been re-elected to that office for the fourth successive year. He has also been re-appointed chairman of the National Council for the sixth year in succession.

*

Mr. H. G. Campbell, assistant managing director of The Benjamin Electric, has been appointed joint managing director of the company.

# Pest Control Products

## COMMITTEE RECOMMEND COMMON NAMES

At the beginning of this year, a Technical Committee was appointed by the British Standards Institution to devise simple, common names for well-established pest control products (including insecticides, insect repellents, acaricides, nematocides, fungicides, herbicides, and rodenticides). The need for common names which do not conflict with proprietary names was pointed out on account of the considerable confusion which has arisen in commercial descriptions and in the technical literature.

The Committee has now prepared the first list, containing some 25 common names for products in general use in agriculture and in veterinary circles throughout Great Britain. This list is being circulated for technical comment among Government departments, manufacturers, and the interested scientific societies before final publication. In order to pre-empt the use of these names as proprietary names, the list has been lodged with, and approved by, H.M. Patent Office. The names will be given protection and will be referred to when application is made for the registration of proprietary names for pest control products.

Wherever possible, the names adopted conform with those already accepted as coined common names by the U.S. Department of Agriculture, and the same system of protection is given by the U.S. Patent Office. It is hoped that the same measures will extend to other countries in due course.

The chemical names assigned to each compound are in accordance with the principles recommended by the Chemical Society. Where possible, only the pure active ingredients have had common names assigned to them, and an endeavour has been made to avoid, with a few exceptions, the use of initials and numbers. These exceptions are made in the cases of compounds which are already well known by initials, such as DDT and BHC, since a further name would only increase the confusion.

During the drafting, the Technical Committee has maintained liaison with the Commonwealth countries as well as with the appropriate committee in the United States.

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### Branding of Pigs

Collaboration between the National Farmers' Union and the Ministry of Food in the development of a system of marking pigs, which will provide an alternative to the present ear tattooing method, has resulted in the choice of a marking instrument which is applied to both shoulders of the pig. The resultant tattoo remains legible after singeing, and is clearly discernible even in the case of black pigs; it is possible to identify the sides of a carcass at the bacon factory, thus avoiding confusion about its source of origin.

The system will be in use at collecting centres and will also be used for pigs sent to bacon factories through Area Pig Allocation Officers direct from the farm. Individual producers will be able to purchase a version of the marking instrument. The code mark for each farmer who sends pigs direct to the bacon factory will be allocated by the manufacturers, who will notify the Ministry of Food of each code issued. A register of the code identification marks will be kept by the Bacon and Ham Division of the Ministry.

### Colour Measurement

Equally suited to measuring the colour of samples by reflected or transmitted light, the Lovibond tintometer provides the simplest means of quantitative colour measurement. Any observer, provided he has normal appreciation of colour, can easily and quickly obtain a reading without any great skill or training. The colour reading is expressed in units of the three primary colours, and provides a precise description of what the colour looks like to an observer.

Consisting of three evenly graduated series of permanent glass colour standards, ranging from the palest to the most highly saturated, the scale is mounted in racks so that any desired combination can be built up easily. The readings can be used to describe colour and colour tolerances and also for works control purposes and chemical analysis.

For fundamental research, the Schofield tintometer enables the colour expressed in Lovibond values to be converted into the International C.I.E. tristimulus values, which are frequently quoted in official specifications.

### Gas Aids Cleanliness

Specially designed to show how the use of modern gas equipment can protect health and ensure cleanliness in factories and similar premises, the Gas Council's exhibit at the recent British Food Fair included a comprehensive display of the latest types of gas water heaters, from a sink boiling water heater—which gives boiling water in 40 seconds—to a large multipoint.

The latest large capacity gas refrigerators, which provide ample storage for perishable food, have separate compartments for frosted food packets, and a good supply of ice cubes were also on view. They are noiseless and have no moving parts which will wear out.

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### Boiler Water Treatment

The fundamental factors of the electro-chemical action which causes corrosion inside boiler equipment and the conditions necessary to prevent corrosion are dealt with in reprints of a paper entitled *Boiler Corrosion and Boiler Feed Water Treatment*, read by Mr. H. Hillier, technical director of G. and J. Weir, before the Institute of Marine Engineers on November 8, 1949. Basic data are given and discussed concerning the substances and reactions involved in feed and boiler water conditioning, and the physical phenomena of scale formation, solubilities of substances, and the physico-chemical interchanges in water conditioning.

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### Joint Consultation

A conversation between a works manager, personnel manager, and workers' representative from a Midlands firm, which has used joint consultation successfully for many years, and a representative from the Ministry of Labour has been recorded in the form of a booklet entitled *This is a True Story*. The discussion clearly shows that joint consultation is a most effective method of maintaining good industrial relationships and encouraging co-operative effort necessary for the achievement of high industrial efficiency. Illustrated with amusing cartoons, the booklet has been prepared to assist industry in any measures taken for the development of appropriate joint consultative machinery, and is available free on request to the Director of Public Relations, Ministry of Labour and National Service.

### Finger-tip Fly Control

Low-pressure insecticidal aerosols have been in use for some time in America, but materials for their manufacture have only recently become available in Great Britain. Non-poisonous and non-inflammable, the aerosol flyspray recently placed on the market by Cooper, McDougall, and Robertson is nine times more powerful than standard flysprays and is specially formulated for use on food premises.

The basic principle of the aerosol spray is the dispersion of a liquid, through a special nozzle, by means of a propellant. Atomisation is so fine that the spray hangs in the air like an invisible smoke and flying insects have little chance of escaping it.

Each dispenser is self-contained and the spray is automatically emitted by pressing the button on top.

Owing to the high concentration of the spray, only small amounts are needed for effective results—3 to 5 seconds' spraying per 1,000 cu. ft. are sufficient to clear premises of flies and other winged insects.

Each dispenser is equivalent in insecticidal effect to two-thirds of a gallon of standard flyspray.

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### New Food Premises

Factory extensions are planned by Coastal Canneries, of Lowestoft.

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Their factory at New Cross, London, S.E., is being rebuilt by the Mazawattee Tea Co.

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Plans put forward by the Cameron Confectionery Co. for the erection of a new factory on a site at the corner of Mowbray Drive and Melwood Avenue, Blackpool, have been approved.

### Changes of Address

On August 5 the Jersey Canning Company transferred to new premises at Plat Douet Road, St. Saviour, Jersey, C.I.

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The sales control and London branch offices of Austin Crompton Parkinson Electric Vehicles, formerly situated at Longbridge and Holland Park Hall respectively, have been transferred to: 95-99, Ladbroke Grove, London, W.11 (Telephone: Park 8070).

The new premises include a showroom and an additional London service station.

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### Strawberry Disease Threat

Fruit growers and scientists have been busy this season studying the progress being made in experiments at Higher Birch Farm, Bere Alston, to produce a new variety of strawberry to replace the favourite "Madame La Phoebe" which has become susceptible to the root disease known as "red core." This disease is peculiar to some districts, including the famed Tamar Valley, and is now threatening the future of the fruit and the livelihood of some 400 growers.

Mr. H. W. Sherrell, chairman of the Tamar Valley Growers' Association, has undertaken to grow the experimental types for the county authorities, and is cultivating varieties developed at Cambridge University and the West Scotland Agricultural College.

At a recent gathering of fruit farmers, Mr. F. A. Roach, fruit specialist of the National Agricultural Advisory Service, advised caution with regard to results concerning the scores of varieties now under trial, as not all had been a success.

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### Corrigendum

The positive self-priming valveless rotary pumps manufactured by the Pulsometer Engineering Co. were incorrectly classed as centrifugal pumps in the August, 1950, issue of FOOD MANUFACTURE. The Midget centrifugal pump for small duties has a capacity up to 2,100 gallons per hour, and heads up to 325 ft. for two-stage, and 180 ft. for single-stage, pumps.

Vacuum pumps are not used on the milk cooling plant described, the only use for such pumps for dairy purposes being for milking machines.

### P.O.A. Conference

The 1950 National Conference of the Purchasing Officers' Association was held under the Presidency of Mr. T. F. Turner (Chief Purchasing Agent, English Electric Co.) at the Hotel Metropole, Brighton, from September 28 to October 1.

Among the speakers were Roy Harrod, whose topic was "Sterling and the Buyer," and the Hon. John Grimston, M.P., who discussed the implications of Government bulk buying.

At this conference the Swinbank gold medal, which has been instituted to recognise outstanding services to the purchasing profession, was awarded for the first time. The recipient was W. Gildon, who lectured on "Half a Century of Progress in Purchasing Procedure."

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### Bottle Washing Procedure

Working details of gas-fired boilers for bottle-washing machines used in conjunction with the detergent injector system developed by the company are given in a brochure issued by the Potterton Gas Division of Thomas De La Rue and Co.

This brochure puts the case for a separate boiler for each bottle-washing machine, and shows how the pump operating the sprays is used to boost the circulation of the detergent. The high rate of circulation through the boiler allows more accurate thermostatic control, since any change in temperature in the detergent tank is immediately detected. Turbulence of detergent in the pipe work connecting boiler to tank also keeps the pipes clear of refuse and label debris.

Other features of this system are clock control for daily automatic heating up, shutting down and weekend breaks, automatic cut-off for easy lighting and safe operation, and calibrated thermostat in detergent flow regulating to desired temperature.

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### Industrial Intercommunication

Suitable for application in continuous processes and conveyor systems, ranging from flour mills to food packaging systems, a new industrial intercommunication equipment designed by British Thomson-Houston will eliminate many of the delays inevitable when instructions have to be relayed by other means.

This system has recently been installed at some works where there are two packing stations, each feeding five loading points, and enables the operators at either station to speak to the loading teams they serve and *vice versa*, so that each worker in the team knows immediately of any change in the normal routine. There are seven points in the loading and packing sections of the works where supervisory control is necessary to facilitate the rapid handling of various grades and quantities, and at each of these points a speaker-unit and control-box incorporating a microphone has been installed.

Each unit is housed in a heavy-gauge sheet-steel case fitted with a spring-loaded dustproof door to ensure protection against foreign matter. All switches are totally enclosed, thus eliminating the possibility of high-resistance at the contacts, and the complete equipment is built to a "tropical" specification.

### Protective Clothing

For use wherever protection from acids, oils, greases, and solvents is necessary, North P.V.C. gloves and protective clothing provide high resistance to wear and abrasion.

To meet the demand of the food and allied trades, Northide are now marketing various standard sizes of their gloves and aprons in white impregnated cloth with a satin finish. The aprons, which are finished with chromium-plated eyelets and ties which allow adjustment to suit the height of the wearer, are easily cleaned, smart, and hardwearing, and possess all the chemical resistance qualities of the original aprons.

Other clothing specially made for use in the industry includes white sleeves, legging aprons, coats (both surgical type and front fastening), and caps.

### Portable Exhibit for Health Weeks

Local authorities holding Clean Food and Health Weeks will be able to borrow from the Ministry of Health a portable exhibition set on the prevention of food poisoning.

The theme of this three-unit exhibition set, which has been produced for the Ministry by the Central Office of Information, is "Wash Your Hands Before Preparing Food" — an injunction directed principally at the professional food handler and housewife. Cut-out "maps" in the first unit show the increase in food poisoning since 1942; then follow dramatic photographs of "guilty hands" illustrating the kind of mishandling that leads to food poisoning. The second unit describes two true case histories, with sketches showing the associated widespread distribution of the infected foods. An original "model-relief" technique is used in the third unit to show how germs are spread, and to illustrate four simple ways of preventing food poisoning. There are also two free-standing boards in the shape of a large raised hand carrying the slogan "For Health's Sake Wash Your Hands."

The exhibition set is of light construction and lends itself to flexibility of layout. When fully opened, each unit is 8 ft. long, with a 2 ft. projecting panel in the centre, making a total depth of 3 ft. There are three tubular metal supports 8 ft. 6 in. high. The units are wired for 230/250 volts A.C. and can be simply connected; they pack into easily handled cases.

Sets will be lent free of charge, but a borrower is expected to pay all transport charges from the previous exhibition site (or store) and to be responsible for erection, dismantling, and repacking.

## BOOKLETS RECEIVED

Items of social interest, cartoons and stories, together with articles on a holiday camp, Iraq, and exploring the moon, are published in the well-illustrated summer number of *Maconochie Magazine*.

▪

Published in July to mark the opening of the extensions to their works at Salt End, Hedon, Hull, an attractively illustrated booklet tells the story of the first twenty-one years of British Industrial Solvents. The subjects of research and development, production and productivity, distribution, and other aspects of the work are described, and colourful charts show the products of the company and their uses in industry.

▪

In view of the interest aroused by the Tea Bureau's exhibition in 1949, it was decided to translate the display into the more permanent form of a booklet entitled *Tea—A Progressive Industry*. The various processes, from the planting of the seed to the final grading and despatch of the tea, are described therein, and it is explained how at every point scientific research and technical ingenuity are being directed towards the production of better tea.

▪

The application of their refrigeration equipment in all aspects of the fish trade, from retail distribution to large scale storage at fish quays, is covered by the Pressed Steel Company's new brochure entitled *Ideal Fish Storage Conditions Ensured by Prestcold Refrigeration*. The booklet is fully illustrated and copies may be obtained on application to the company's refrigeration division.

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The first section of a comprehensive publication recently issued by Henry Wiggin and Company discusses the effects of temperature, aeration, agitation, and acid concentration on the corrosion-resistance of Monel, nickel, Ni-Resist, Inconel, and other nickel-chromium alloys, when attacked by straight sulphuric acid solution.

The effect of reactions in which sulphuric acid is mixed in varying amounts with other chemicals is not readily predicted. Numerous corrosion tests have therefore been made in plant under actual operating conditions; the processes included in these investigations vary from fat-splitting to petroleum refining.

There are many new additions in the second edition of the fine chemicals price list of British Chemicals and Biologicals, Genatosan Division, and supplementary lists of further additions will be issued from time to time.

As in the previous list, small convenient standard packings are listed, but most of these chemicals are available in bulk quantities.

▪

Entitled *The Work We Do*, a new illustrated catalogue gives a clear description of the operations of the Birmingham and Blackburn Construction Co. Primarily heating and ventilating engineers, steel fabricators, and sheet metal workers, the company install all kinds of steam and hot water systems, air conditioning and ventilating plant, and heat insulation. They also carry out the design and construction of drying systems, dust removal and collection, fume and vapour removal, elevators and conveyors, and special purpose machines.

Breakages of large and small jars, whisky bottles, and food bags were reduced through tests carried out at the package-testing station recently set up by Patra at Leatherhead, and reports on four typical problems are given in the latest issue of their journal (Vol. 18, No. 1).

In the same issue, the background and work of members of the Research Association's staff directly responsible for the new packaging services are described.

▪

A further booklet published by the Purchasing Officers' Association in their Raw Materials Survey Series is devoted to oils and fats. Divided into three parts, dealing with descriptive background, economic survey, and the importation of oilseeds, oils, and fats into the U.K., the booklet provides valuable factual information for anyone interested in the study of world sources of supply of industrial materials.

### Additions to Power Truck Range

In response to the demand for power trucks capable of handling a heavier load than their 1 h.p. models, Wessex Industries (Poole) have introduced two new models.

The 3 h.p. hydraulic stillage truck is capable of lifting and carrying a 1 ton load, either on its own steel plate platform of 4 ft. by 2 ft. 6 in., or on stillage platforms. The hydraulic pump of improved type is connected to twin rams under the platform, which give a lift of 3 in., from a closed height of 9 in. The rear axle carries solid rubber-tyred wheels with brakes on the inner two, and a forward protection frame has been added with a pressed steel seat.

Possessing a 10 cu. ft. fabricated steel body, the 3 h.p. tipping truck is manually controlled and has a backward rolling motion when operated, the body being carried on two notched quadrants engaging in corresponding racks on the main chassis frame. This body is easily interchanged with a boarded flat platform.

Both models above are powered by the firm's 3 h.p. Villiers 250 c.c. four stroke petrol engine unit with Albion 3 speed and reverse gear box, and turn through a full circle on a ball-bearing turntable plate.

## COMPANY NEWS

In the report and statement of accounts for the year ended March 31, 1950, the directors of Energen Foods Co. recommend a final dividend at the rate of 15 per cent., less tax, making a total of 25 per cent. for the year.

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Presiding over the thirty-fourth annual general meeting of the H. J. Heinz Company, the chairman, Mr. H. J. Heinz II, stated that trading results of the current year had been satisfactory. Improved supplies of ingredients had enabled them to reintroduce several pre-war soups, and for the first time in the history of the business Heinz tomato ketchup had been produced in the U.K. The group had continued to add to their line of strained foods and were now marketing fifteen varieties of these.

Exports from the U.K. continued to expand and were now more than three times the pre-war level.

▪

At the fiftieth annual general meeting of Virol, Lord Luke, chairman, said that for their Jubilee year the sales and profits constituted a record. This was due not only to the popularity of Virol and Virolax, but also to the recognition of their food value by the medical profession. Though it could not be expected that these results would continue indefinitely despite increasing prices, the company was well equipped to meet any difficulties.

After payment of the preference dividends, the directors recommended a dividend of 17½ per cent., and a Jubilee bonus of 7½ per cent. on the ordinary shares.

▪

In their review of operations for the year 1949, Lever Brothers and Unilever report an increase in production throughout their business; this was most marked in Western Europe and was caused mainly by the increase in supplies of raw materials. On the whole, the organisation more than maintained its position and the total turnover had increased.

A dividend of 10 per cent. on the ordinary stock of the Limited group and a dividend of 8·9 per cent. on the ordinary capital of the N.V. group were recommended. Together these proposed dividends represented 1·5 per cent. of the total funds of the ordinary shareholders.

## OBITER DICTA

• I think too highly of my cat to give her "red" salmon. Why have we Russian foodstuffs on the market?—*Correspondent to the "South Wales Argus."*

• Once upon a time, even if the sun occasionally set on the British Empire, it always rose on the British breakfast.—*Bruce Blunt in the "Daily Express."*

• If we all fed at home and ate nothing but roast beef or lamb, there would be very little food poisoning.—*Prof. G. S. Wilson, director of the Public Health Laboratory Service.*

• We even dream about beans, and we have heard that one student here had a nightmare in which a huge plum was packing students into cans.—*A university student who has been helping to can plums and beans at Smedley's.*

• British hens are patriotic. In these days of economic difficulty they are laying a much higher proportion of heavier eggs than they did in easier pre-war times.—*"Northshields Evening News."*

• Why all this worry about people who handle food? By all means let us have clean food—it is more appetising. But why worry about germs? Some little germ will get you some day!—*Correspondent to the "Evening Standard."*

• The Teutonic nations have twice pounded each other, and the root cause may lie among the treacherous tubers and the problem of Power Politics may yet be solved in terms of potato pits.—*Liam Brophy in "The Irish Press."*

• The Ministry's stand at the British Food Fair is entitled "The Egg and You." It illustrates the odyssey of the egg from the hen to the breakfast table. (Note in the Ministry of Food Bulletin.) Just so. The Odyssey took twenty years. *Peterborough in the "Daily Telegraph."*

• Recently I read with some envy that dentists are providing tanks of goldfish to soothe the nerves of patients. I am the wife of an overworked and underpaid general practitioner. I had several goldfish before the National Scheme descended upon us, but I had to serve these to my husband for supper one night.—*Correspondent to the "Sunday Express."*

At a meeting of the board of St. Martin Preserving Company held on July 17, 1950, it was decided to recommend the payment of a dividend of 12½ per cent. for the year to March 31, 1950, against 12½ per cent. for the year to March 31, 1949.

▪

In spite of import restrictions, the export business of W. J. Bush and Co. was again on a higher level than the previous year, it was reported by Dr. P. C. C. Isherwood, O.B.E., Ph.D., F.R.I.C., chairman and managing director, at the company's fifty-third annual general meeting.

A final dividend of 8 per cent. on the ordinary shares, making 12 per cent. for the year, less income tax, and also the payment of a bonus of 1s. per share, as against 6d. last year, were recommended.

▪

Sir Robert Barlow, chairman of the Metal Box Co., in his review presented at the twenty-ninth annual general meeting of the company, said that, despite various statements to the contrary, the shortage of tinplate remained as a grave handicap to the company's activities at home and overseas. Owing to the increase of world demand, the shortage was becoming more acute, thus bringing about very real harm to the British canning industry and consequently to agriculture.

The ordinary dividend was maintained at 20 per cent.

▪

At the fortieth ordinary general meeting of the A.P.V. Company held recently, the managing director, Mr. P. W. Seligman, B.A., M.I.Mech.E., presiding in the absence of the chairman, stated that the group profit on trading amounted to £423,401—an increase of £103,209 over the preceding year. The volume of work produced by the company and its subsidiaries had strained the capacity of the company's factories beyond the requirements of true economy, and it was essential to supplement the available capital at once if the present rate of production were to be maintained.

At a subsequent extraordinary general meeting resolutions were passed providing for an increase in capital by the creation of more ordinary shares, distribution of undivided profits among shareholders, and consolidation of ordinary shares.

# World Food News

### Tanganyika's Meat Factory

The large meat factory erected near Dar-es-Salaam in Tanganyika about which a note appeared in the June issue of FOOD MANUFACTURE was opened recently by the Governor of Tanganyika, Sir Edward Twining. The cattle handled by the factory will be converted into tinned beef and other meat products for local use and export to countries including Britain.

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### New Guinea Development Scheme

The Federal Government is considering a £(A)100 million defence and development scheme for Papua and New Guinea. The plans provide for the money to be spent over a period of ten years on the building up of tea plantations to supply all Australia's needs; the stepping up of copra and rubber production; the establishment of cocoa, spice, coffee, jute, hemp, vanilla, and bean plantations; the exploitation of big tracts of land suitable for cattle and pig raising; and the construction of hydroelectric works to provide for big industries.

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### Lighting in Canneries

As part of its programme to offer better solutions for all types of "seeing" problems, the Illuminating Engineering Society of America has formed a number of investigating committees, each of which surveys the particular seeing tasks in the industry under study in order to recommend the quantity and quality of the lighting required. The work of each of these committees is co-ordinated and reviewed by a Committee on Lighting Study Projects in Industry.

In their report on *Lighting for Canneries*, the Committee conclude that there is usually a need for improving the general lighting of the working areas in canneries, and that canning operations necessitate a considerable amount and variety of supplementary lighting for the various tasks involved. Illustrated with numerous diagrams and pictures, the report covers considerations common to all types of canneries, lighting for colour grading and container inspection, and lighting of the critical seeing tasks for peach, apricot, tomato, and olive canning, together with recommendations for improvement.

### Analyses of Irish Industries

Analyses of the bread, flour confectionery, biscuit, sugar and sugar confectionery, jam, bacon curing, butter, cheese, condensed milk, and margarine industries in the Republic of Ireland which have been published in the Census of Industrial Production for 1948, show the percentages of gross output represented by the cost of materials, fuel, containers, etc., for that year as compared with the figures for 1947.

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### Indian Rice Research

As a result of experiments conducted under a scheme financed by the Indian Council of Agricultural Research, a number of improved varieties of paddy have been evolved by the research station in Travancore. The work comprised the collection of paddy varieties from a wide range of places in India; pure line selection for high yield resistance to acidity and salinity from local types; and study of effect on their viability of drying sprouted seeds.

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### Norwegian Herring Research

Following tests made in Bergen, Western Norway, which proved that meal made from conserved herrings had the same nutritive value as that made from fresh herrings, it is planned to build two silos for conserved herrings at Maeloy. Conserving and storing in the silos, which are expected to be ready for use in the next season, will enable processing factories to operate over a longer period and avoid difficulties which arose this year when herring catches were too large for the factories to handle.

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### Danish Egg Preserving Method

A new method of preserving eggs, claimed to be cheaper and superior to any existing method, has been developed by a Danish egg exporter, H. K. Siggaard. By the use of this method, which involves boiling the eggs for a few seconds and coating them with a special liquid, eggs can be preserved at room temperatures for up to six months, during which time they retain the colour, taste, and smell of fresh eggs.

Large-scale tests are shortly to be carried out.

### Fat Research in West Germany

The main tasks of a new Institute for Fat Research, which has recently been established in Muenster (British zone), will be to investigate the utilisation of fats and to examine manufacturing methods. It replaces the former *Reichsinstitut* which discontinued its activities in 1945.

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### S. African Food Hygiene

The Bureau of Standards in South Africa is engaged in the preparation of a code of practice for the sanitary requirements for food processing and storing establishments in the Union. It is also preparing a specification for canned soups and specialities and canned meat products.

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### More Sugar for Italians

It is expected that the sugar beet crop in Italy will yield a harvest of over 4 million tons this year, or some 15 to 18 per cent. more than in 1949. This is part of a long-term programme for the production of more sugar, with a resultant increase in fodder for stock-breeders.

Consumption of sugar in Italy during the current year is estimated to reach 22 lb. per head of population, thus exceeding the average pre-war consumption.

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### Italy's New Food Legislation

In view of the necessity for some kind of control over the sale of products for infants and invalids, a law was introduced in Italy in 1947 which required a preliminary registration for such products.

Experience has shown, however, that treating foodstuffs in the same manner as medical products only hampered trade without producing practical results, and it has now been decided that all dietetic products and foods for infants, including the already established brands, must be submitted to the High Commissioner for Hygiene and Public Health, who will grant licences for their sale if they satisfy the requirements listed in specially drawn up standards. All imported brands will also have to be submitted to the Commissioner, who will ascertain whether they are up to standard.

A heavy fine will be imposed on all those selling products that do not conform to the new law.

## OVERSEAS ENQUIRIES

### Jams and Marmalades

The United Kingdom Trade Commissioner for the Maritime Provinces and Newfoundland at Montreal has reported that A. H. Murray and Co., Ltd., St. John's, Newfoundland, have expressed an interest in securing the agency for Newfoundland of a United Kingdom firm of manufacturers of jams and marmalades.

Any firms not already represented in Newfoundland who are interested in this enquiry should communicate with the company direct, giving full details of their products and quoting prices c.i.f. in Canadian currency.

■

### Bottled and Canned Fruits

The United Kingdom Trade Commissioner at Kingston, Jamaica, has reported that The Army and Navy Stores, Ltd., 136, Harbour Street, Kingston, Jamaica, are anxious to secure the sole distribution in Jamaica for a United Kingdom firm supplying canned or bottled fresh fruits in water.

Any firms interested in this enquiry should communicate with the company direct.

■

### Smoked Fish

The United Kingdom Trade Commissioner at Nairobi reports that George A. Tyson (Agencies), Ltd., P.O. Box 228, Nairobi, have expressed the desire to secure the representation of United Kingdom firms for kippers, smoked haddock, and smoked cod fillets. The agency would in the first place cover Kenya Colony only.

Any firms interested in this enquiry should communicate with the firm, quoting prices c.i.f., type of packing, and the number of units per case.

■

### Confectionery Agencies

The United Kingdom Trade Commissioner for the Maritime Provinces and Newfoundland at Montreal has reported that F. M. O'Leary, Ltd., 85, Water Street, St. John's, Newfoundland, have expressed an interest in obtaining the agency of a United Kingdom firm of confectionery manufacturers.

Any United Kingdom firms not already represented in Newfoundland interested in this enquiry should communicate with the firm direct, preferably quoting prices c.i.f. in Canadian currency.

The United Kingdom Trade Commissioner at Melbourne has reported that Mr. C. H. Brock, 527, Collins Street, Melbourne, is anxious to obtain the agency of a United Kingdom manufacturer of good quality confectionery. It is emphasised that quality is the main consideration, price being of secondary importance.

Any firms interested in this enquiry should communicate with Mr. Brock direct, quoting prices c.i.f. Melbourne.

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### Bakery Mix Research

Devoted to every phase of research and product development in the fully prepared flour field, an up-to-date laboratory has recently been opened by the Doughnut Corporation of America.

The work of the laboratory is intimately related to the production of prepared mixes in the three domestic blending plants, the flour mill, and engineering research departments of the company. Five floors of scientific apparatus, various types of bakery equipment, a training centre for doughnut representatives, and a miniature flour mill comprise the new laboratory which is equipped with all types of analytical facilities and dough testing instruments, as well as apparatus for the carrying out of any particular operation on a laboratory and pilot plant scale.

The knowledge obtained in the laboratory is applied in a separate baking laboratory where practical bakers who specialise in the production of cakes, doughnuts, and sweet goods, are able to test a new ingredient or specially processed mix.

Laboratory observation and knowledge must be coupled with actual production tests, and for this purpose a full scale plant for producing doughnuts is available on the premises.

In the training centre, every new man is thoroughly trained to install, repair, and operate equipment. The doughnut machines range from the "Lincoln," which is capable of turning out forty dozen doughnuts per hour, to machines with a capacity of 600 dozen per hour. There is also a waffle machine producing two waffles every 3½ minutes.

The company recently developed a process of making yeast-raised doughnuts by machine in place of the hand method which is long, tedious, and expensive, and they are currently working on a new development which, when perfected, will result in the betterment of cake doughnuts.

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### Meat Packing in Turkey

In order to provide meat products for export and to eliminate seasonal meat shortages in certain urban centres, a modern meat packing industry will be established in Turkey with E.C.A. aid. The domestic costs for the first year of the programme will be the equivalent of U.S.$2 million.

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### Oil Extraction at Zadar

A new factory for the extraction of oils from vegetable and fish waste has begun production at Zadar, North Adriatic. A fish oil for use in the leather-tanning industry and toilet soaps is being produced, and, apart from fish waste, a considerable amount of olive stones is to be used.

**The test bakery which forms part of the new laboratory of the Doughnut Corporation of America.**

### Australian Tinplate Shortage

With increasing production of canned foodstuffs and growing overseas and local demand for tinned products, the tinplate supply position in Australia is causing concern.

The United Kingdom is the chief source of supply at present, but British production cannot keep pace with the demand, so that all customers have had to be rationed. The Federal Government is making representations to the U.K. Government in an endeavour to increase the quota to Australian food manufacturers, and representatives of the trade are visiting Japan to ascertain whether supplies can be obtained from that source. Australia will not make her own tinplate until 1956.

Those mainly affected by the tinplate shortage are canners of fruit, jam, meat, milk, and eggs, who account for about 90 per cent. of the tinplate used in Australia.

Arrangements have been made for some of the normal orders to American manufacturers to be placed early so that supplies may be more readily available to Australian manufacturers.

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### Food and Nutrition

A review of the many different departments of the Mellon Institute and accounts of the research carried out during the past year are contained in the thirty-seventh annual report of the Institute for the period ended February 28, 1950.

The Multiple Fellowship on Food Varieties, under the donorship of H. J. Heinz Co., has been investigating fundamental food and nutrition problems, having practical application to future production items.

The study of the nitrate content of foods, initiated in 1949, has proceeded with emphasis on the distribution of nitrate within the leaves of the spinach plant. This work has been extended to cover the distribution of calcium and oxalate ions.

Five varieties of high-protein cereal for infant feeding were packed with and without the addition of various antioxidants in pilot plant amounts. They were stored at room temperature and at 100° F. Organoleptic examinations at 3, 6, and 9 months have shown the samples to possess good keeping qualities. Accelerated rancidity tests have also given an indication of the relative keeping quality of the several formulae. Certain antioxidants have proved useful in prolonging storage life.

### British Food Corporation's Project

Prospects of profit this year from the British Food Corporation's 92,596 acre project at Peak Downs, Central Queensland, are regarded as good, it was stated recently by the British Secretary for Commonwealth Relations, Mr. Gordon Walker. A larger area would be placed under production this season, and there were further tracts of good land to extend the project. The sorghum scheme, which was nearing the end of harvest, was admirable and efficient methods were being used, making possible increased exports of grain to Britain.

The Corporation, on its property near Capella, 450 miles north-west of Brisbane, had planted this year 67,000 acres of sorghum, 4,000 acres of sunflower, and trial plots of soya beans and pasture grasses. The property was also fattening 15,000 head of cattle and establishing piggeries on its various holdings.

### Dispenser for Nutmeg

A nutmeg dispenser called the Leedpak has been produced by the Leeds Sales Co., Inc., New York. These dispensers, which have a string stapled to them, are attached to liquor bottles. Similar dispensers are also supplied filled with salt, pepper, and other sample powdered products for use on passenger planes.

### Greek Fish Processing

Proposals have been made to expand the Greek fish processing industries by giving financial assistance to existing plants and by the setting up of new ones. In order to reduce the cost of cans, it is proposed to authorise the duty-free import of the necessary metal.

The reconstruction of the Greek fishing fleet has led to large catches of migratory and semi-migratory fish, such as sardines, anchovies, bonito, and tunny. At present, however, this large seasonal production is not absorbed by the canning, salting, and smoking industries and, consequently, hundreds of tons of fish are thrown away each year by the fishing fleets.

Owing to the slow advance in the rehabilitation of stock-breeding, Greek domestic meat production in the last year of the Marshall Plan (1951/52) will be some 21,000 tons lower than the pre-war annual production. The processing of fish, in the form of canning, salting, or smoking, would go a long way towards meeting Greek food needs.

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### Cold Storage Mission

With a view to the establishment of a "cold chain" of refrigeration centres throughout Western Europe which will prevent the present inevitable waste of perishable foodstuffs, one of the largest missions ever to visit the United States under the E.C.A. Technical Assistance Scheme is now studying the collection, transport, and storing of frozen goods in the U.S.A., together with the manufacture and methods of use of refrigeration plant.

The fifty industrial and governmental experts, representing twelve of the eighteen O.E.E.C. member countries, who comprise the mission are making an eight-weeks' tour of cold storage installations, and are examining every aspect of freezing, handling, transportation, and storage of perishables. For this purpose the mission is dividing up into several parties, to study respectively rail and road transport and equipment; collection, freezing, handling, and distribution of foodstuffs; construction, erection, and operation of cold storage equipment; and economic and commercial research.

On their return to Europe, the mission will prepare a report for the O.E.E.C. and will recommend measures to improve production and output in this particular field.

# News from the Ministries

### Extraction Rate of Flour

It was recently announced by the Minister of Food that, as from August 27, 1950, the extraction rate of flour used for the national loaf would be reduced to 80 per cent., and that flour of this extraction rate would be made up of home-milled national flour with a rate of 81 per cent. and a proportion of imported flour with a lower rate.

To give effect to this decision, the Minister has further amended the Flour Order, 1947, to provide for the extraction rate of home-milled national flour to be reduced from 85 to 81 per cent. The new Order will have no effect on such provisions of the main Flour Order as make it illegal to sell or use flour for the purpose of making food for animals.

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### Marzipan from Italy

Arrangements have been made for the importation under individual licence of a limited quantity of marzipan from Italy.

The marzipan will be imported through normal trade channels. Applications for import licences should be made in duplicate on the usual form ILD/A, obtainable from the Board of Trade, Import Licensing Branch, Romney House, Tufton Street, S.W.1, and from the usual Customs Offices. For administrative convenience, completed application forms should, in the first instance, be submitted to the Bakery Division of the Ministry of Food, London Road, Stanmore, Middlesex.

The marzipan to be imported under these arrangements should consist of ground almond kernels and sugar only and the almond kernel content must be at least 20 per cent. The unqualified description "marzipan" may be applied only where the percentage of almond is not less than 66⅔ per cent. In all other cases the word "marzipan" should be qualified by the addition of the actual percentage of almond kernels in the mixture, *e.g.* marzipan (40 per cent. almonds). Applications for import licences should be endorsed with the following information:

(*a*) Prices f.o.b. and c.i.f.
(*b*) Composition of the marzipan, *i.e.* percentage of sugar and almond kernels.
(*c*) Type, size, and weight of pack.

### Sugar Confectionery Definition

The Chocolate, Sugar Confectionery, and Cocoa Products Order, 1949, has been amended so as to remove any doubt that the definition of sugar confectionery includes products containing sugar in any form and any other goods that would be regarded in the confectionery industry as sugar confectionery.

The amending Order came into force on August 27, 1950.

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### Standard Grades for Poultry

With the de-control of home-produced dressed poultry, there has been a widely expressed desire among producers and distributors for the revival and development by the industry itself of national grading standards, because of the contribution which the use of standards can make to increased efficiency and expansion of poultry production. Early in 1950, the Ministry set up an Advisory Committee on Dressed Poultry Marketing Standards, representative of all sections of the industry, to consider simplified quality standards for voluntary use suitable to present-day requirements and to recommend how the commercial use of the grades can best be encouraged.

The Ministry, therefore, with the agreement of the Advisory Committee, have now published recommended grades for trial use by packers during an experimental period of twelve months. In this time it is anticipated that producers, packers, and distributors will be able to gain experience and form a comparative judgment with the normal standards of production and trading. When sufficient trial has been given to these recommended grades, they will be confirmed as statutory grades, for voluntary use, under Section 1 of the Agricultural Produce (Grading and Marking) Act, 1928.

It is important that during the trial period, the Advisory Committee should be kept aware of any suggestions for improvement or modification of the quality definitions arising from the practical commercial use of the grades. Suggestions should be addressed to the Secretary, Ministry of Agriculture and Fisheries, Marketing Division, 36-38, Chester Terrace, Regent's Park, N.W.1, and the reference MAS 151 quoted.

### Imports of Cake Mixtures

Cake mixtures for the bakery trade may now be imported from Belgium as well as from those countries previously specified.

Applications for import licences should be made in duplicate on the usual form ILD/A, obtainable from the Board of Trade, Import Licensing Branch, Romney House, Tufton Street, S.W.1, and from the usual Customs Offices. For administrative convenience, completed application forms should, in the first instance, be submitted to the Bakery Division of the Ministry of Food, London Road, Stanmore, Middlesex. They should be endorsed with the following information:

(*a*) Composition of the cake mixture.
(*b*) Values f.o.b. and c.i.f.
(*c*) Type and weight of pack.

The bakery trade cake mixtures to be imported under these arrangements should be packed in containers of not less than 7 lb. capacity, for sale to manufacturing users. They should *not* contain:

(*a*) Dried fruits.
(*b*) More than 15 per cent. dried egg solids and/or hen albumen.
(*c*) More than 20 per cent. skim or full cream milk powder.
(*d*) More than 60 per cent. sugar and/or glucose.

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### Sugar/Fat/Cocoa Mixture

Arrangements have been made for the importation of a limited quantity of sugar/fat/cocoa mixture from Sweden, Norway, Holland, and Denmark under specific licence. The term "sugar" includes sucrose, invert sugar, and glucose; the term "fat" excludes cocoa butter.

Applications for import licences should be made in duplicate on the usual form ILD/A obtainable from the Board of Trade and from the usual Customs Offices.

For administrative convenience completed application forms should, in the first instance, be submitted to the Bakery Division of the Ministry of Food, London Road, Stanmore, Middlesex, endorsed with the following information:

(*a*) Composition of the product (percentage of each ingredient to be stated).
(*b*) Values f.o.b. and c.i.f.
(*c*) Type, size, and weight of pack.

# Import of Goods for Re-export

## LICENSING PROCEDURE SIMPLIFIED

A simplification of the formalities for the import of goods for re-export is announced by the Board of Trade.

Importers who have hitherto been required to render returns every three months showing the disposal of such imports (*i.e.* on licences prefixed RE, REX, or UX) will now, in the case of imports from most countries, merely be required by the Import Licensing Branch to notify them when export has been completed, or when further re-export licences are required for similar goods.

Returns at six-monthly intervals will however be required for goods imported from Bolivia, Canada, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Japan, Korea, Liberia, Lichtenstein, Mexico, Nicaragua, Panama, Persia (Iran), Philippine Republic, Switzerland, U.S.A., and Venezuela.

This does not affect special arrangements made in the case of a few specified commodities, neither does it apply to returns made to other departments or to the Bank of England, as, for example, in the case of tea, coffee, and leather.

Where the six-monthly returns are required, these should be made on a new standard form (obtainable from Import Licensing Branch) which calls in most cases for less detailed information than previously, and it is hoped that its introduction will save work for all concerned.

These changes apply both to future imports and to goods already imported. New importers from the countries listed above will be notified of the dates on which they should submit returns. Firms already submitting returns for imports from these countries should send in their next return (on the new form) six months from the date of their last one, and they will then be notified of the date on which all future returns should be submitted.

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### Fruit and Vegetable Imports

Grapes from Czechoslovakia have been added to the list of items which may now be imported under the block licensing arrangements previously announced.

The necessary arrangements have been made with H.M. Customs and Excise. Importers who already hold an appropriate licence of the F.F. series will be allowed to import grapes from Czechoslovakia without amendment to their licences.

Importers who are not already in possession of the appropriate licence but who wish to share in these arrangements should submit an application (in duplicate) on Board of Trade form ILD/A, which may be obtained from the Board of Trade, Import Licensing Branch, Romney House, Tufton Street, London, S.W.1, from the usual Customs Offices, or from the Ministry of Food, Fresh Fruit and Vegetables Division, Import Section, 24-32, York Terrace, Regent's Park, London, N.W.1. For administrative convenience, importers are asked to send such applications to the Board of Trade through the Ministry of Food at the above address.

### Flour Millers' Grists

Grists for bread making in England and Wales were altered on August 28, 1950, to:

45 per cent. Manitoba wheat (maximum).

45 per cent. home-grown wheat (minimum).

10 per cent. other imported wheats, as available.

No alterations have been made in the grists for Scotland and Northern Ireland.

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### Bread Subsidy

Following discussions with the bakers' associations, the rate of bread subsidy for England and Wales will be 8s. 3½d. a sack with effect from March 26, 1950, and 8s. 8½d. with effect from April 23, 1950. These rates of subsidy replace the provisional rate of 5s. 10½d. a sack which was granted on May 18 pending final agreement between the Ministry and the trade on the basis of actual costings submitted.

Bakers will be able to claim the difference between the provisional rate of subsidy already paid since March 26 and the new rate of subsidy now agreed on Form B.S. 71.

### Prices of Dates

Prices for the 1949 crop of Iraqui dates have been reduced by £1 10s. per cwt. This reduction applies to both pitted dates in bulk and packet dates.

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### Imports of Tomatoes

In accordance with the arrangements for the importation of certain fresh fruits and vegetables, no further imports of tomatoes are being permitted under the block licences (F.F. series) issued by the Board of Trade, as from August 15/16, 1950.

Any consignments which can be shown to the satisfaction of the Commissioners of Customs and Excise to have been despatched before midnight, August 15/16, will be admitted.

The importation of tomatoes under open general licence from countries to which that licensing system applies will, under existing arrangements, be resumed on October 16, 1950.

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### Imports of Canned Cooked Meats

Following the recent talks between the United Kingdom and Czechoslovakia on trade during the second year of the Anglo-Czechoslovakian Five-Year Agreement, Czechoslovakia has now been added to the list of countries from which canned cooked hams, canned cooked gammons, and canned cooked shoulders may be imported under the block licensing arrangements.

The necessary arrangements have been made with H.M. Customs and Excise. Importers who already hold an appropriate licence of the Canned Ham series will be allowed to import these products from this source without amendment to the licence.

Importers who are not already in possession of the appropriate licence but who wish to share in these arrangements should submit an application (in duplicate) on Board of Trade form ILD/A, which may be obtained from the Board of Trade, Import Licensing Department, Romney House, Tufton Street, London, S.W.1, from the usual Customs Offices, or from the Ministry of Food, Imports Branch, Bacon and Ham Division, Block A, London Road, Stanmore, Middlesex. For administrative convenience, importers are asked to send such applications to the Board of Trade through the Ministry of Food at the above address.

# Information and Advice

### Fondant Base

B.4600. *We wish to obtain some information regarding the manufacture of a fondant base.* (London.)

The following formula was given as a basis for experiment:

| | |
|---|---|
| Granulated sugar ... ... ... | 224 lb. |
| Corn syrup ... ... ... ... | 56 ,, |
| Cream of tartar ... ... ... | ½ oz. |

The sugar is placed with 8 gal. of water in the steam syruping pan of a fondant machine. It is dissolved thoroughly, so that no isolated crystals of sugar are left adhering to the sides of the pan. The corn syrup is added and brought to simmering point, any surface scum being taken off. The syrup should test 30° Baumé at boiling point. It is then pumped into the fondant machine and cooked to 240° F. This temperature is variable, according to the degree of stiffness of fondant required. The cooked syrup is cooled to 90°-100° F. and beaten. The resultant fondant base is allowed to mature for at least 48 hours before using. This allows the fondant to become more moist by a redistribution and equalisation of the moisture by diffusion and capillary action.

To produce a short smooth fondant, 28 lb. dextrose hydrate are added to the above fondant batch as it passes into the heating chamber. This may be accomplished by a regulated worm mechanism, so that the dextrose is uniformly distributed throughout the batch. The remelted fondant with its proper proportion of invertase will give a cast cream centre of a soft plastic consistency which, when eaten, appears cool to the palate owing to the dextrose hydrate possessing the property of absorbing heat on solution.

### Turkish Delight

B.4609. *We are interested in making Turkish Delight and would like to know the formula for this.* (Yorks.)

The following formula was given as a basis for trial:

| | |
|---|---|
| Granulated sugar ... ... | 37½ lb. |
| Corn syrup ... ... ... | 21 ,, |
| Citric acid ... ... ... | 6 drm. |
| Thin boiling starch (fluidity 65) | 9 lb. |
| Honey ... ... ... ... | 4 ,, |
| Soluble oil of lemon ... ... | ¼ fl. oz. |

The sugar and corn syrup are placed in a steam stirring pan with 3 gal. of water. The batch is boiled to dissolve the sugar. The thin boiling starch is mixed to a thin paste in 1½ gal. of cold water and added to the batch slowly. The latter is cooked at 60 lb. per sq. in. steam pressure, until the batch does not adhere to the hand when struck. The steam is turned off and the honey and lemon essence added. When well mixed, the batch is poured out into heavily starch-dusted trays, and corn starch is sprinkled over the surface of the material. The trays are stacked in a dry place to cool. When cool, the sheets are cut on a guillotine or by hand knife, and the pieces copiously dusted with finely ground sugar.

Turkish Delight is always packed with a generous helping of finely ground sugar, which prevents sticking and assists a certain amount of case-hardening of the pieces. An alternative dusting powder consists of 75 per cent. ground sugar and 25 per cent. corn starch.

This sweetmeat is usually made in two-colour layers. One batch, flavoured lemon, is run into the dusted trays to a predetermined thickness, and a second batch coloured pink, flavoured with diluted attar of rose, is run on top of the first.

The suspended starch solution must be added slowly, so that complete gelatinisation of the starch takes place progressively. An efficient stirring cooker is essential in order to obtain uniform heating throughout the mass during the cooking process.

### Information Supplied

B.4559. *Cellophane for bottle wrapping.* (Angus.)

B.4560. *Cans.* (N. Ireland.)

B.4561. *Almonds.* (London.)

B.4562. *Use of oils in table jelly manufacture.* (Ireland.)

B.4564. *Extraction of essential oils from oranges, limes, and other fruit.* (British West Africa.)

B.4565. *Table jellies.* (Ireland.)

B.4566. *Washing fresh vegetables.* (Kent.)

B.4568. *Table jelly powder.* (Lancs.)

B.4570. *Monosodium glutamate.* (Lancs.)

B.4572. *Sausage manufacture.* (British West Indies.)

B.4573. *Cream of celery.* (S. Australia.)

B.4574. *Processing of nuts.* (Yorks.)

B.4575. *Metal fruit caps fitted with synthetic skin rings.* (Ireland.)

B.4577. *Potato chips, peanuts, heat sealers, Cellophane bags, popcorn, lollipops, toffee apples, and apple peelers and corers.* (London.)

B.4578. *Acetic acid.* (Leics.)

B.4580. *Malt extract.* (Bucks.)

B.4581. *Hand-operated dicing machines.* (Berks.)

B.4590. *Insecticides.* (Yorks.)

B.4591. *Jamaica syrup and Filter-Cel.* (Glos.)

B.4593. *Preparation of salted nuts.* (London.)

B.4597. *Orange slicing machine.* (Mexico.)

B.4599. *Canning and ham presses.* (Ireland.)

B.4601. *Head splitters for pigs.* (Berks.)

B.4602. *Wrapping and cartoning of table jellies.* (Lancs.)

B.4604. *Potato crisp manufacture.* (Yorks.)

B.4605. *Filling equipment.* (S. Africa.)

B.4606. *Continuous friers for potato crisps.* (Perth.)

B.4610. *Shredded suet.* (Ireland.)

B.4612. *Sugar boilers.* (Lancs.)

B.4614. *Barrel washing machines.* (Herts.)

B.4615. *Pulverisers.* (Ceylon.)

B.4617. *Shelled nuts and stoned dates.* (Dorset.)

B.4618. *Root slicers.* (Lancs.)

B.4619. *Cocoa butter.* (British West Indies.)

### Information Required

B.4626. *Name and address of manufacturers of a machine for cleaning van boards 78 in. × 12 in. and confectionery trays 30 in. × 20 in.* (Staffs.)

# Recent Patents

640,962. LEVER BROS. AND UNILEVER, LTD., and TROTTER, R. L.: Closure caps for jars and like containers.
641,182. ATELIERS HEUZE, MALEVEZ, AND SIMON RÉUNIS SOC. ANON.: Apparatus for treating or working materials, particularly pastes, such as chocolate pastes.
641,213. AKTIESELSKABET ATLAS: Preservation of vegetables and other foliaceous plant materials.
641,321. HASTINGS, R. J.: Machine for the manufacture of crumpets and the like.
641,362. ROSE BROS. (GAINSBOROUGH), LTD., and ROSE, A. G.: Apparatus for manipulating toffee, ice cream, and other confectionery substances.
641,423. WILFLEY MINING MACHINERY CO., LTD., and BELLAMY, E. A.: Weighing apparatus.
641,458. ZWANENBERG'S FABRIEKEN N.V.: Curing of meat.
641,557. MATHIESON ALKALI WORKS: Method of reducing the micro-organism content of soya bean flour.
641,676. FROST AND CO., LTD., S., and COLGROVE, A. E.: Machines for making sausage rolls and the like.
641,682. JEPPESEN, F.B. OSTRUP- (trading as OSTRUP - JEPPESEN CHOKOLADE-OG DRAGEEFABRIK): Production of chocolate goods.
641,755. BRADFORD AND SONS, LTD., S., and FOSTER, A.: Apparatus for greasing baking tins and like utensils or batches of dough or paste preparatory to baking.

## Abstract of a Recent Specification

### Drying Salt Fish

This invention relates to a new or improved method of drying salt fish. By the expression "salt fish" is meant fish which has been salted, for example, by pickling in brine. It is already well known to dry salt fish in the open-air by spreading the fish to dry, either directly on paved plots of ground, pebble banks, or rocks, or alternatively, to spread the fish on lengths of wire netting secured to suitable supports fixed permanently in position on the ground.

This method requires a considerable amount of labour, and with a view to reducing this, an alternative method has been developed in which the fish is dried by taking it from the stack of fish and spreading it on transportable frames on which wire netting is stretched, the frames being carried on poles or brackets and placed upon the ground in such a position that one end of the frame rests on the ground while the other end is raised somewhat above the ground so that the fish is fully exposed to the atmosphere. After it has dried for a given period, usually several hours, the frames are again carried by hand to the stacking place, the frames emptied, and the fish stacked in heaps. In this way the labour of spreading the fish on the ground, or on the frames provided permanently on the ground, and the subsequent collection of the fish therefrom, and the stacking of the fish on the hand barrows was avoided.

The object of this invention is to provide an improvement upon these methods in which the number of operations involved are still further reduced, thereby saving labour, and in which handling of the individual fish is reduced to a minimum.

A single layer of fish is spread upon each of a plurality of open frames adapted to support the layer while permitting of free circulation of air to its under surface, the frames being so shaped, having regard to the thickness of the fish to be dried, that they are capable of being stacked one on top of the other with layers of fish pressed tightly between adjacent frames, the frames each with a single layer of fish thereon being alternately spaced apart from one another while exposed at the same time to a drying atmosphere, and stacked one on top of the other in superposed relationship with the layers of fish pressed tightly between the adjacent frames. The steps of alternately spacing and stacking the frames are continued without removing the fish from the frames until the desired degree of drying of the fish has been effected.

639,258. *Sveinn Johanness Arnason.*

*Recent patents have been selected from the "Official Journal of Patents" and are published by permission of the Controller of H.M.S.O.*

# Trade Marks

**SYLVA.**—658,444. Bacon, meat, and meat extracts, none being sold in tins. **John Silver, Limited,** 230, Central Meat Market, London, E.C.1; Merchants.
**MANOR.**—670,427. Vinegar, sauces, chutney, sandwich spreads in the nature of salad cream and containing vegetables, prepared mustard, and non-medicated sugar confectionery. **Manor Vinegar Brewery Company, Limited,** Gower Street, Lozells, Birmingham, 19; Manufacturers.
**FLAVAL.**—671,460. Seasonings, stuffings made principally of cereal preparations, baking powder, salt, mustard, pepper, and spices. **The Midland Rusk Company, Limited,** Caldwell Spice Mills, Avenue Road, Nuneaton, Warwickshire; Merchants.
**PROMIL.**—677,717. Preparations of methyl cellulose and powdered whey for use as substitutes for eggs in the bakery and confectionery trades, but not including preparations containing malt constituents. **Benger's, Limited,** Holmes Chapel, Cheshire; Manufacturers.
**SOUTHWELL'S.** — 679,392. Preserved peels, marmalade, jam, jellies (for food), preparations for making table jellies, preserved pineapple, bottled fruits, canned fruits, mincemeat, fruit purée, fruit curds, rennet, preserved cherries, preserved ginger; and ground, chopped, and flaked almond. **Chas. Southwell and Company, Limited,** Dockhead, London, S.E.1; Manufacturers.
**SOUPA.**—682,084. Tomato pulp, tomato soup, vegetable soups, fruit pulp, fruit syrups (not for making beverages), candied fruit, dried orange peel, fruits in syrup, tinned vegetables, and tinned meats. **Société Chérifienne d'Utilisation de Produits Agricoles (S.C.U.P.A.), S.A.** (a Company incorporated and existing under the laws of France), Boulevard du Commandant Fage, Casablanca, Morocco; Merchants.
**UNILAC.** — 682,300. Preparations of coffee and milk, chocolate and milk, and of cocoa and milk; milk chocolate sweetmeats; and food preparations consisting principally of cocoa and containing milk. **The Nestlé Company, Limited,** Hayes, Middlesex; Manufacturers.

*Trade marks have been selected from the "Official Trade Marks Journal" and are published by permission of the Controller of H.M.S.O.*

# New Companies

**V. Kaye and Company, Limited.** (481816.) To carry on business of importers, manufacturers and exporters of and dealers in cocoa, coffee, tea, and other foodstuffs, food beverages, etc. Nom. cap.: £1,000 in £1 shares. Dirs.: not named. Subs.: P. J. Saunders (clk.) and G. W. Turner (solr.), 5, Queen Anne Street, London, W.1.

**J. E. Mytton, Limited.** (483940.) 25, Lodge Road, Birmingham, 18. To carry on business of butchers and poultry dealers, etc. Nom. cap.: £2,000 in £1 shares. Dirs.: J. A. Hunt, 159, Heathfield Road, Birmingham, 19; E. J. M. Hunt, 128, Grasmere Road, Handsworth, Birmingham, 21; A. C. Hunt, address not stated.

**Pwll Potato Crisp Company, Limited.** (483950.) Pwll, Llanelly. Nom. cap.: £3,000 in £1 shares. Permt. dirs: R. S. Carman, Salutation Hotel, Llanelly; Hannah J. Davies, 47, Bassett Terrace, Pwll, Llanelly; C. Evans, J. A. Evans, J. H. Marker Stephens, and W. D. Thomas.

**Trough House, Limited.** (483956.) Trough House, 105, Manchester Road, Audenshaw, Manchester. To carry on business of bakers, confectioners, pastry cooks, and biscuit makers, etc. Nom. cap.: £5,000 in £1 shares. Dirs.: Phyllis M. Massey and F. Massey, Trough House, 105, Manchester Road, Audenshaw, Manchester.

**Busy B (John C. Berwick), Limited.** (483968.) Westminster Buildings, New York Street, Leeds, 2. To carry on business of butchers, etc. Nom. cap.: £1,000 in £1 shares. Dirs.: J. C. Berwick, 46, Sandhill Oval, Alwoodley, Leeds (permt.); Margaret Van Der Wal, 18, Regents Park Avenue, Leeds, 6.

**C. C. Isles, Limited.** (483970.) To carry on business of butchers, poulterers, etc. Nom. cap.: £500 in £1 shares. Dirs.: J. W. McLeod, The Chiggies, Headley Chase, Brentwood, Essex (acct.). Sub.: R. E. Stedman, 18, Brookview Road, Streatham, S.W.16.

**J. W. Ludlow and Company, Limited.** (483991.) 9A, Leeds Road, Harrogate, Yorks. To carry on business of fish and oyster merchants, etc. Nom. cap.: £500 in £1 shares. Dirs.: J. W. Ludlow and Mrs. W. Kirkham, 9A, Leeds Road, Harrogate, Yorks.; E. Kitching, Manor House, Burton Leonard, W. Yorks.; N. MacRae and W. J. Kirkham.

**Marcus Sheldon, Limited.** (483995.) 11, Albert Square, Manchester, 2. To take over business of a confectioner carried on at 110A, Bury Old Road, Salford, 7, by Marcus Sheldon. Nom. cap.: £1,000 in £1 shares. Dirs.: M. W. Sheldon, 110A, Bury Old Road, Salford, 7; Freda Godfrey, 7, Broom Lane, Salford.

**Frank Legg, Limited.** (484010.) To carry on business of bakers, caterers, confectioners, etc. Nom. cap.: £2,000 in £1 shares. Dirs.: F. F. Legg, 210, Gladstone Street, Nottingham (permt. ch. and mang. dir.); C. F. Legg, 187, Sneinton Dale, Nottingham; S. E. Legg, address not stated.

**Lune Fisheries, Limited.** (484019.) To take over business carried on by Nellie Creske, Georgina M. Peers, Edna M. Holt, and Millie Hotchkin. Nom. cap.: £3,000 in £1 shares. Dirs.: not named. Subs.: H. Holgate and A. Holgate, 216A, Lord Street, Fleetwood.

*Taken from the Daily Register, compiled by Jordan and Sons, Limited, Company Registration Agents, 116, Chancery Lane, London, W.C.2.*